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THE PRACTITIONER:

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A Monthly Journal

OF

THERAPEUTICS.

EDITED BY

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THE PRACTITIONER.

JULY, 1871.

Original Communications.

NOTE ON THE PHYSIOLOGICAL EFFECTS OF ANÆSTHETICS.

BY DR. J. L. PREVOST, OF GENEVA.

IN a series of interesting lectures which M. Claude Bernard gave at the Collège de France, he examined with great care the anæsthetics, and chloroform in particular. I have no intention to review, here, the results obtained by M. Bernard; they will be found complete in various reports of his courses of lectures, especially in the *Revue des Cours Scientifiques*, for 1868 and 1869, and in the *Gazette Hebdomadaire*, 1869. There is a point, however, on which I desire to insist here, viz. the paralysing influence which the anæsthetised brain has, according to M. Bernard, on the other nervous centres; that is to say, on the spinal cord. My experiments, in fact, seem to me to contradict this view. The following is the fundamental experiment which led M. Bernard to the above-named conclusion:—

M. Bernard removed the circulation of a frog by taking away the heart and the viscera (the frog can, as is known, survive this mutilation for some hours); he then placed a ligature under the axillæ so as to strangle the integument *en masse*. Plunging, then, the anterior part of the animal into chloroform and water, or (more simply) injecting chloroform and water beneath the skin of the anterior portion of this frog, he anæsthetised not only the anterior portion beyond the ligature, but also the posterior limbs, which were the other side of the ligature. This result could not be obtained if the spinal cord had been previously divided.

When, on the contrary, M. Bernard injected chloroform beneath the skin of the hind limbs of a frog similarly prepared, or when he plunged the parts below the ligature into chloroform and water, he only anæsthetised the posterior part of the animal, the head and anterior limbs preserving their sensibility.

M. Bernard concluded, from these experiments, that there was a *transmission by nervous influence* from the cerebral centre to the spinal centre, and from thence to the periphery, but that this influence could not travel in the inverse direction. In other terms, the brain being anæsthetised, the animal is affected in every part without the diffusion of poisoned blood into the posterior half of the body; but if the spinal centre receives the poison, without the brain being affected, anæsthesia is produced in the parts dependent on the poisoned portion of the cord, but not in the brain.

This is a question much more important than it appears at first sight. In fact, if the anæsthetic agent can, merely by affecting the brain, also anæsthetise, secondarily, the spinal cord and the general sensibility, it must be remarked, as my excellent friend M. Ranvier, prosector to M. Bernard (who, when visiting me at Geneva, was so good as to explain to me the operation, and the views of his teacher), pointed out to me, that we must assume the existence in the brain of cells whose function is to paralyse the spinal cord. These cells would form centres capable of being excited by the anæsthetic, and then paralysing, secondarily, the sensory cells of the spinal cord which are in connection with the sensitive nerves. These centres for paralysing sensibility would thus be analogous to the auditory centres and nerves, which play such a curious and important rôle in relation to certain movements, and especially to the movements of the heart.

This is evidently an interesting question, not only as regards the physiological *modus operandi* of anæsthetics, but as regards the general physiology of the nervous centres.

It is this limited question in the study of anæsthetics that I propose now to examine, detailing my experiments which indicate a contrary view, but reserving for a future article the treatment of several points relative to the mode of action of anæsthetics, and also to the relations and the differences which

may exist between different anæsthetics, as regards their physiological effects.

I have often repeated the experiment of M. Claude Bernard, and it is only exceptionally that I have succeeded in anæsthetising the posterior limbs of a frog deprived of circulation and ligatured transversely beneath the axillæ, by injecting chloroform and water under the skin of the anterior part of the body. Most frequently, the anterior portion only, which was in direct contact with the chloroform, was anæsthetised, and the posterior limbs retained their sensibility as long as in a frog similarly mutilated but not submitted to the action of chloroform, although I had in no way injured the spinal cord.

This persistence of the sensibility of the posterior limbs presented itself especially when I took the precaution to place the frog in a slanting position with its head downwards, so that the chloroform could not pass to the posterior limbs by mere infiltration.

In filtration is, I believe, one of the principal causes of error in these experiments. The poisonous fluids penetrate into the tissues of the frog as they might pass through a filter, although the animal may be deprived of circulation. Chloroform, reaching the spinal canal, may pass down its interior, and reach the cord below the ligature, which only includes the soft tissues and does not compress the spinal canal.

The following experiment shows the importance which imbibition may have in reference to the more or less rapid or complete loss of sensibility.

On the 5th of April, 1871, I selected four frogs of the same species and size; from each I removed the heart and the viscera, and after having sewed up the animal again, I ligatured it with a double thread below the axillæ. One of the threads was strongly tied over the back, the other under the belly, so as to compress the soft parts, and to prevent subcutaneous filtration of the injected liquid.

Two of these frogs (No. 1, No. 2) received chloroform in water beneath the skin of the head, and were placed one with the head high (No. 1), the other with the head low (No. 2).

The two other frogs (No. 3, No. 4) received chloroform in water beneath the skin of the posterior part, and were placed one with the head high (No. 3), the other with the head low (No. 4)

I regularly observed the sensibility of these animals, and I found that the frog No. 1, with the head high and the chloroform beneath the skin of the anterior part, was the first one completely anaesthetised. The posterior limbs became pretty quickly insensible. The posterior limbs in the frog No. 2, operated on in the same way and placed with its posterior parts highest, remained, on the contrary, sensible.

In the other frogs, which received the anaesthetic beneath the skin of the posterior part, a similar phenomenon was produced; that one with the head high (No. 3) preserved the sensibility of the head and arms for more than an hour, for which time the experiment lasted; No. 4, on the contrary, at the moment of finishing the experiment, while still preserving the sensibility of the corneas, had lost the sensibility of the arms; the chloroform having, in all probability, filtered at this time as far as the brachial plexus, without reaching the brain.

This comparative experiment shows clearly the influence of infiltration; it appears to me sufficiently important to be summed up in the form of a synoptic table which will make it more intelligible to my readers.

EXPERIMENT MADE APRIL 5TH, 1871.

		4h. 15m.	4h. 22m.	4h. 35m.	4h. 47m.	4h. 55m.
FROG No. 1.	{ Head . . .	{ Chloroformed water under skin of head. }	{ Corneas }	Insensible.	Insensible.	Insensible.
	{ Anterior limbs }		{ insensible. }			
	{ Ligature . . }		Sensible.	{ Very slightly sensible. }	Insensible.	Insensible.
	{ Posterior limbs }		Sensible.	{ Sensibility { lessened. }	{ Slightly sensible. }	Insensible.
FROG No. 2.	{ Post. limbs }		Sensible.	Very sensible.	Very sensible.	Sensible.
	{ Ligature . . }		Sensible.	Insensible.	Insensible.	Insensible.
	{ Anterior limbs }					
	{ Head . . .	{ Chloroformed water under skin of head. }	{ Corneas }	Insensible.	Insensible.	Insensible.
			{ insensible }			
		3h. 36m.	3h. 50m.	4h. 15m.	4h. 35m.	4h. 50m.
FROG No. 3.	{ Head . . .		Sensible.	Sensible.	Sensible.	Sensible.
	{ Anterior limbs }		Sensible.	{ Left arm in- sensible, rt. arm sensible. }	Insensible.	Insensible.
	{ Ligature . . }					
	{ Posterior limbs }	{ Chloroformed water under skin of pos- terior part. }	Insensible.	Insensible.	Insensible.	Insensible.
FROG No. 4.	{ Post. limbs }	{ Chloroformed water under skin of pos- terior part. }	Insensible.	Insensible.	Insensible.	Insensible.
	{ Ligature . . }		Sensible.	Sensible.	Sensible.	Insensible.
	{ Anterior limbs }		Sensible.	Sensible.	Sensible.	{ Corneas }
	{ Head . . .					{ sensible. }

Modifying now the experiment of M. Claude Bernard, I determined to act on the brain itself; in order to be able to limit the effect of the anæsthetic more exactly by putting it in direct contact with the nervous centre.

I varied in several ways the experimental procedure: I began by plunging the head of frogs, whose brain had been laid bare and the circulation removed, in chloroform and water; in other experiments I contented myself with injecting some drops of chloroform and water into the brain without immersing the rest of the head. In these experiments I always obtained anæsthesia of the head, showing itself especially by insensibility of the corneas and of the tongue, and loss of the cerebral functions. The animal became stupified and remained motionless; but its limbs retained their sensibility, and reacted when I pinched them or touched them with a drop of acetic acid. The reflex movements depending on the spinal cord were also preserved; the anæsthesia was limited to the brain, and this cerebral anæsthesia did not anæsthetise the cord when I took care that the chloroform did not infiltrate the spinal canal.

After a great number of similar experiments, which had a similar result, I applied directly a small pledget of tow moistened with pure chloroform to the naked brain of a frog deprived of circulation.

There is thus produced a very rapid anæsthesia of the head, the sensibility of the corneas and the cerebral functions are abolished, and the animal remains motionless and asleep. If care be taken to place the frog so that the head is lower than the body, and the chloroform does not filter into the spinal canal, the anæsthesia remains limited to the brain, and the limbs preserve their sensibility. In certain cases the reflex movements of the limbs have even appeared to me exaggerated.

It was this exaggeration of the reflex movements observed in some of my experiments which led me to modify anew my operative procedure. In fact, as frogs only survive the removal of the heart for an hour and a half or two hours, and do not recover from chloroformisation produced in these conditions, it is natural to ask oneself whether in my experiment the pure chloroform applied to brain did not act rather as a caustic than as an æsthetic. The frogs to whose brains the chloroform had

been applied would in that case resemble decapitated frogs, the functions of the cord only surviving.

The only means of answering this objection is to find a way to bring back to the normal state the frogs anæsthetised by the application of chloroform to the brain.

Instead of removing the circulation, I contented myself with putting a ligature on the aorta; I anæsthetised the brain by the direct application of a pledget moistened with chloroform. When cerebral anæsthesia was produced, I washed the brain under a gentle stream of water, and I untied the aorta. The animal remained inert for about an hour, or sometimes less. It then recovered little by little like an anæsthetised frog, sensation only reappearing gradually in the parts which it had left, and the animal returned completely to its normal state.

I have many times repeated this interesting experiment. I shall give as an example the following

EXPERIMENT MADE ON THE 12TH APRIL, 1871.

Red Frog, of medium size; male.

3 o'clock.—After having laid bare the heart, I tied the aorta and the pulmonary artery, where they pass out of the pericardium; the brain was laid bare. The frog remained quite lively. I applied to the cerebral lobes a pledget of tow moistened with pure chloroform. The corneas were very quickly insensible.

3h. 20m.—The frog is well anæsthetised; it remains motionless; the corneas and the tongue are insensitive; the limbs, on the contrary, and the trunk remain sensitive. The animal draws the limbs back when one pinches them. Respiration is suspended. The brain is white and anæmic; I wash it under a current of water. The aorta being untied, the brain becomes red again.

3h. 25m.—Same condition; cerebral anæsthesia, with sensibility of the limbs and of the trunk, persist.

3h. 40m.—Slight sensibility of the left cornea.

3h. 50m.—Slight respiratory movements observed, which soon quickly increase. Sensibility of posterior limbs apparently increased; there are associated voluntary movements to escape

the irritation produced by pinching a toe, and to avoid the agent of irritation. The right cornea shows less sensibility than the left (in removing the cranium I had slightly injured the posterior part of the right cerebral lobe, which is possibly the cause of this difference).

4h. 30m.—I left the animal, which had nearly recovered its normal state, although a little sleepy; it tried to recover itself when placed on its back. Left cornea very sensitive; right one less so. Slight tendency to rotation. The wounds were sewed up.

Next day, April 13th, 2 P.M., frog altogether recovered, but for a slight tendency to rotation, probably the result of the little wound of the right brain.

On many occasions, after having anæsthetised the brain, and proved that no anæsthetic influence was exerted on the cord, I attacked the cord itself, and by injecting chloroform and water into the spinal canal I had succeeded in anæsthetising the cord in its turn, and in abolishing, successively, the sensibility of the anterior, and then of the posterior limbs, when the anæsthesia reached the lower portions of the cord.

I shall relate the following experiment, which is remarkable because I was enabled to see the return of sensibility, which had been lost (first in the brain, and then in the upper half of the cord) by the direct application of chloroform to these organs.

EXPERIMENT MADE ON THE 19TH APRIL, 1871.

Red Frog, male, vigorous.

The brain was laid bare, the aorta and pulmonary artery tied, outside the pericardium.

3h. 15m.—Application of a pledget moistened with chloroform to the brain.

3h. 20m.—The frog was asleep, the corneas insensitive, the animal motionless, unless stirred up. When one pinched the arms and the posterior limbs, there were violent reflex movements. Sensibility rather exaggerated. The animal did not breathe.

3h. 40m.—Same condition. I injected, now, a little chloroform and water into the spinal canal, which in two or three minutes

produced complete anæsthesia of the arms. The posterior limbs, on the contrary, remained sensitive.

3h. 50m.—The brain was washed and the aorta untied.

4h. 50m.—The anæsthesia has ceased. The frog has returned to the normal state. Sensibility and motility perfect. Respiration re-established.

The next day (20th April) the frog shows no lesion of sensibility, and retains no trace of the anæsthesia to which it was submitted the day before.

We see, then, in my varied experiments, that I have always verified the anæsthetic effects of chloroform on the nervous centres (brain and spinal cord) in the parts reached by the anæsthetic; but, when taking precautions against the effects of imbibition and the transport of chloroform by infiltration, I have never been able to detect an anæsthetic influence exerted by the chloroformised brain remotely, or a spinal cord not affected by the chloroform.

I am therefore tempted to believe that the different results obtained by M. Claude Bernard were due to the non-avoidance of filtration to a distance.

The position of the spinal canal with regard to the cranium, and the position which the frog takes if one leaves it free after the injection of chloroform and water under the skin of the head, favour filtration from above downwards into the spinal canal.

The spinal canal is narrower, on the contrary, towards the posterior limbs, and presents at this level a much less extensive surface to the anæsthetic agent, so that liquids introduced into the posterior part of the animal filter with difficulty towards the anterior portion. The position which the frog takes in the normal state increases this difficulty of filtration from behind forwards: this is a circumstance, it is true, which one can modify by placing the frog with its head low (*vide* Exp. 4), but then, as I have shown, the results vary also.

In conclusion, I may say that my experiments lead me to believe that chloroform, in order to anæsthetise the nervous centres, must reach those centres, and that it only anæsthetises the part with which it is in actual contact, whether in the case of the brain or in that of the spinal cord.

CASE OF TRAUMATIC FEMORAL ANEURISM, ILLUSTRATING THE USE OF CARBOLIZED CATGUT LIGATURE.

BY GEORGE BUCHANAN, A.M., M.D.

Surgeon and Lecturer on Clinical Surgery, Glasgow Royal Infirmary; Professor of Anatomy in Anderson's University, &c.

THE following case is a very good example of a circumscribed traumatic femoral aneurism becoming diffuse, and treated by laying open the sac and applying a ligature above and below the wound in the artery. I used carbolised catgut ligatures, because I believe that they produce obliteration of the vessel without ulcerating through the coats—as ordinary ligatures do; and although this process is of no importance in the case of vessels such as the superficial femoral or brachial, yet undoubtedly it is the cause of the secondary hæmorrhage which is so frequently the cause of death after ligature of the larger vessels near the aorta. If then it can be established by the publication of a sufficiently large number of examples, that ligature of vessels on the antiseptic principle, with carbolized catgut ligatures, is followed by obliteration of the canal without ulceration of their coats, one of the objections to ligature of the great vessels would be removed. The case was made the subject of clinical lecture and was watched by a large class of clinical students, and the facts are extracted from the Ward Journal kept by Mr. G. Thomson, clinical clerk.

William McG——, aged 16, met with an accident on the 8th of December, 1870. In walking across the yard of a foundry he fell on the unsheathed handle of a file, which made a punctured wound on the anterior and inner aspect of his right thigh, penetrating about two inches. The wound bled profusely, but

by the time medical aid was obtained the lad had fainted and the bleeding ceased. The wound was bound up with a compress and bandage. The hæmorrhage did not recur, and in about fourteen days he was able to move about the house, but always with a halt in walking. About three weeks before admission he observed a swelling in the situation of the cicatrix, which was, as he said, about the size of the end of an egg, and was beating. This gradually increased in size till it assumed its present dimensions. At present it is about three inches in diameter, nearly circular, throbbing synchronously with the femoral artery, and with all the signs of a traumatic femoral aneurism. The patient states that, after remaining nearly the same size for a considerable time, the day or two before admission it suddenly became larger and beat more violently. The skin over the tumour was on admission red and shining, and I feared that suppuration was taking place.

Two days after admission, *i.e.* on the 28th January, 1871, he was taken to the theatre to be operated on. On being placed on the table it was observed that pulsation had ceased, and the lad declared that during the night he had observed a diminution in the beating of the tumour. The tumour, however, was larger, more red, and fluctuating, and there seemed to be no doubt that suppuration would occur in the partially coagulated blood in the sac if the operation were not proceeded with.

Accordingly, after the patient was put under the influence of chloroform, I laid open the sac by an incision about four inches long, turned out the clots, among which pus was clearly visible, and after some trouble, owing to the bleeding of an inosculating artery, applied a carbolized catgut ligature to the femoral artery above and below the wound in it, which was of a size to admit the point of the forefinger. A third ligature was applied to the large branch above referred to; silver sutures were introduced, but not drawn close—a proceeding intended to allow the escape of the blood which must ooze, even if in small quantity, from the bottom of such a large wound.

It would be tedious to relate the daily progress of the case towards recovery.

The wound was treated antiseptically with iac plaster. After forty-eight hours the edges were drawn close by tying the silver

wires. Considerable discharge took place, but from first to last not a trace of decomposition or putrefaction could be observed. The most careful examination of the discharge failed to detect any appearance of the catgut ligatures, and I have no doubt in my own mind that they were retained and imbedded in the tissues, and that occlusion of the vessels took place without ulceration of the coats of the artery and discharge of the ligature.

The patient made an excellent recovery.

THE BODILY SYMPTOMS OF INSANITY: THE IMPORTANCE OF OBSERVING AND TREATING THEM.

BY T. S. CLOUSTON, M.D.

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THERE can be little doubt that medical science would gain much by the loss of such terms as "insanity," "lunacy," "alienation," "unsoundness of mind," "mental disease," from its nomenclature. Those terms mislead in various ways. That they are the expressions of false notions as to the origin and nature of the group of maladies which they are meant to designate, is the smallest objection to them. Those notions are so definitely exploded, that even the most suggestive names scarcely call them up to the mind. A much stronger objection to them is, that they serve to keep up and embody all the evil popular traditions that have so hurtfully affected this branch of medicine. But the strongest objection of all to them is, that while they are employed no better system of nomenclature has any chance of coming into use. The group of diseases which they lump together as one special disease does not, so far as the ordinary physician is concerned, break up into the species and varieties of which it is composed on account of the use of those terms. The workers in this field of medicine have remained few in number through the want of this individualising process, which in other fields has given small but definite departments to different men. The scientific accuracy and method which has characterized the clinical study of the diseases of other organs has scarcely ever been applied to those of the brain when its psychical functions were chiefly affected. Above all, the mental symptoms have been far too exclusively looked at, to the neglect of the bodily symptoms. In a book on insanity we look for metaphysical

disquisitions, chapters on degrees of responsibility, and medico-legal sketches, as naturally as we look for accounts of murmurs and diseased valves in a book on heart-disease. In the one case we should be surprised indeed if the author confined himself to what could be proved or tested by ordinary scientific rules; in the other we should at once pronounce him to be a useless and mischievous theorist if he departed far from those rules. The temptation to substitute speculations for facts, and to generalise on insufficient data, seems to be irresistible where psychical phenomena are concerned. Purely mental manifestations must be looked on as symptoms merely, so far as the physician is concerned, when he is studying disorder of function of the brain. A delusion is not the disease, but must be simply reckoned as equivalent to an abnormal sound in heart-disease, indicating that the organ is acting badly somehow, and an abnormal state of consciousness or an uncontrollable impulse regarded in the same way, merely as a symptom, without the slightest reference to the Ego or to any intuitive convictions of the mind. Looked at in this way as mere symptoms, the purely mental phenomena of insanity are of course beyond measure important and worthy of study: but as it is always a safe thing in any clinical or scientific investigation to go from the lower to the higher, from the known to the unknown, to begin with what is most certain and most easily comprehended before we go on to what is obscure to our senses, it would seem reasonable to study first of all the bodily and purely physical symptoms in insanity before we take account of the mental. A method precisely the reverse of this has been followed. In nine-tenths of the single cases of insanity that one finds recorded, it would seem that the bodily symptoms and the purely nervous derangement that always exist at the beginning of an attack are quite ignored, and our interest is reserved for some extraordinary delusion or some marvellous impulse, the true significance of which is utterly unknown to us, and the real importance of which in the clinical history of the case may be absolutely *nil*. It is as if the reporter of a case of heart-disease dwelt entirely on some curious murmur or an altered rhythm, without going into the rheumatism which began it, or caring about the valvular disease which caused it. In the one case the disease is, as a matter of course, said to *con-*

sist of a certain purely mental aberration ; in the other, if any one described the disease to consist of a blowing murmur with the first sound of the heart, the height of absurdity would be said to have been reached. It cannot surely be allowed to go on, in any department of medicine, that the symptoms of a disease are to be completely dissociated from its pathology, without a strong effort being made to remedy this state of matters. To some minds it may seem as though it were a coming down to withdraw the attention from the study of mind and concentrate it on the study of purely bodily symptoms. It is, no doubt, much more interesting and certainly much less laborious to note merely the delusions, the emotional disturbances and states of consciousness, and take no account of the functions of the stomach, the state of the pupils, the ophthalmoscopic appearances, the temperature, the weight, and the motor functions. The time may and no doubt will come, when a given mental symptom will indicate a certain lesion of the brain, or some definite connection between a diseased organ and the function of a portion of the cerebral structure, just as a given murmur indicates that a certain valve of the heart is diseased. At present I think I speak advisedly when I say that there is absolutely no mental symptom or train of mental symptoms which, taken by themselves, are certainly diagnostic of any particular brain lesion. And if this is all that has been gained by centuries of the old method, we cannot lose much, and might gain something, if we began a new method, and concentrated the greater part of our attention on the bodily conditions, deeming nothing too trivial to be observed, and nothing too irrelevant to be noted. It was by this means that the French physicians discovered general paralysis, and I am sure that there is a vast field still lying unexplored. Few things in medicine have been seen till they have been looked for, and the state of mind of a physician examining a case of insanity has not hitherto been a favourable one to observe all the bodily symptoms present. His attention was much too fixed on the mental symptoms for this.

Certainly it does not, *à priori*, seem unreasonable to suppose that when the functions of the great presiding hemispheres of the brain are disordered, we should have disturbances throughout the body that when studied carefully, would throw light on the

particular cerebral ganglion or group of convolutions affected. No function of the bodily organs but obeys nerve influence. Each organic function having its own regulating ganglia, which again are under the control and influence more or less of the "hemispherical ganglia," it is not to be supposed that every part of the hemispherical convolutions are equally connected with, or have equal control over, every remote ganglion. When from the emotion of grief the lachrymal glands secrete tears, from the emotion of joy the heart begins to beat more quickly, and from the emotion of fear we tremble all over, or a child goes into convulsions of nearly all the voluntary muscles, we must conclude that one set of convolutions of the brain has a special connection with the ganglia of the orbit, another set with the sympathetic supplying the heart, and another set with the grey substance of the spinal cord. If this is so, as is now universally recognized, may we not hope, by a careful study of the bodily derangements that nearly always accompany mental derangements, to ascertain the part of the brain affected, and in what way affected? May we not get important indications for treating the affected brain through the more easily got at organ? And in those numerous cases of insanity where the primary disorder is in the peripheral organ, which has acted by some sort of sympathetic or reflex action on the brain, the study and the treatment of this primary disorder is our first duty.

But it may be asked, What if there are no bodily symptoms to be observed or treated? or if they are trifling in severity, or not connected directly with the brain disorder? There are cases of recent insanity, doubtless, where there are no symptoms present except purely mental derangement, but it is surprising how few of such there are. For more than a year I have used the form of Case Book for an asylum recommended by a committee of the Medico-Psychological Society,¹ which requires special examination and record of all the bodily functions, and on going over my last 100 cases whose disease was under six months' duration, I find that in 83 of them there were symptoms of bodily disorder that could be directly connected with the psychical symptoms. In most of those cases it was the disordered bodily functions that required medical treatment with a view to the recovery of

¹ Journal of Mental Science, July 1870.

the patient, more than the mental aberration ; or rather, in the present state of our knowledge, it was chiefly the bodily symptoms that could be treated with any very certain conviction that one was doing good. No doubt in very many, if not the majority of them, they are the necessary consequents or accompaniments rather than the causes of the brain disorder. I consider them in reality part of the disease. The brain is so infinitely sensitive an organ, that if there is in any case an inherited predisposition to derangement of its functions (as is the case so often in insanity), a very slight disorder of another organ may upset its healthy working. In such cases it is of the first importance to have all the functions of organic life working well. I have no doubt that many a man strongly predisposed to insanity escapes the disease by having a good digestion. The obviously calming influence on brain irritation which is exerted by a restoration to healthy working of the digestive apparatus is like the steadying effect of a good balance-wheel on the movements of a watch.

An article in this journal is not the place to go into a full and exhaustive catalogue of all the bodily symptoms that accompany insanity, with their treatment. I shall confine myself to the most prominent. For this purpose it may be the most instructive plan to analyse the 100 cases I have referred to. In that way an idea may be formed of the relative frequency and importance of the different symptoms ; and, many of them having been watched to their termination in recovery or otherwise, they will yield good examples of the effect of treatment.

In twenty-four of the eighty-three cases there was disorder of the motor functions of the nervous system ; in three there was sensation of fulness in the head, "confusion" or giddiness ; in seven, anæsthesia, or deadened reflex action ; in six, neuralgic pains ; in three the special senses were affected ; in twenty-six the pupils were unequal in size—contracted, dilated, or almost insensitive to light ; in twenty-eight the temperature was above 99° at night ; in thirty-six the digestive or assimilative organs were disordered in function ; in twenty-eight the heart had organic disease, or the pulse was above 100 per minute ; in thirteen the lungs were diseased ; in seventeen the uterine functions were deranged ; and in thirteen there was marked emacia-

tion, all these symptoms being well marked. In many of them other bodily symptoms were present in a less marked and more debateable degree. Very many of the patients suffered from a complication of these disorders; some had one of them only in addition to the mental disturbance. Such a list shows very unmistakably that most ordinary cases of insanity are far from being simple, uncomplicated examples of psychical disorder. I believe it will be found by any one who takes the trouble to observe and note all the symptoms in cases of recent insanity, that five-sixths of them are complicated in the same way as my cases were. And in the case of the remaining sixth, by far the majority were not first attacks of the disease; and second or third attacks are usually neither so severe nor so curable as first attacks are apt to be. The presence of these bodily disturbances undoubtedly brings the cases much more under the category of ordinary disease than insanity is usually thought to be, so far as medical treatment is concerned. To many physicians a case of simple mental disorder is a perfect *bête noir*, that is regarded with the utmost impatience and hopelessness, and is sent to a lunatic asylum or got rid of as soon as possible. To such the case may be divested of some of its unpleasant features if it is realized to have many points in common with any ordinary disease, presenting symptoms that are generally recognized to lie within the reach of therapeutics. It may be useful, therefore, to go more carefully into the various disorders enumerated above, discussing their amenability to treatment, and their relation to the psychical disturbance. In a journal of therapeutics it will be proper to dwell most on that class of symptoms which afford most hopes of benefit from medical treatment.

Motor Disturbances.—The cases where the motor functions of the nervous system were materially affected were largely made up of general paralysis, epilepsy, and hemiplegia, and were by far the most incurable. In so far as medical treatment may be needed to relieve symptoms and palliate some of the most disagreeable features of such incurable diseases with motor symptoms, I think bromide of potassium will be found useful more frequently than any other medicine. Wherever there is abnormal irritability of the motor nerve-centres, the bromide is nearly always useful. In so far as its action has as yet been

made out, this is its most direct, most speedy, and surest property. A very extended series of experiments with the drug in this class of cases has strongly impressed me with this,¹ and has confirmed what others have observed in the same direction. If given in too great quantity, either in general paralysis and in some cases of epilepsy, it will produce temporary paraplegia before any very marked effect on the functions of the brain proper is seen. There were two classes of cases with motor disturbances, however, which were not at all incurable, viz. those where there were choreic movements, and where an attack of severe brain excitement became engrafted on an attack of hemiplegia in a young woman after childbirth. In the former cases the rheumatic poison was the cause of the symptoms, probably by a sort of metastasis from the joints to the connective-tissue of the nerve-centres. There were two such cases in the eighty-three, which is undoubtedly in a much greater proportion than such cases ordinarily occur, for they are very rare. The whole of their symptoms were of the most interesting kind from a physiological and pathological point of view, on account of the whole cerebro-spinal centres being involved. I am not aware of any pathological lesion that affords more instructive study of nerve function. Having described both cases very fully elsewhere,² I need not dwell on them. In regard to treatment, we may safely wait until the many distinguished physicians who are studying the subject of the treatment of acute rheumatism arrive at the first principles of therapeutical agreement before we come to any conclusion. No doubt, whatever will cut short an attack of arthritic rheumatism will also cut short an attack of cerebro-spinal rheumatism. It is, meantime, satisfactory to know that they will recover themselves, without any treatment, in about two months. As a palliative for symptoms, I found chloral to be very efficient. The other case was one of acute delirious insanity, and occurred in a young woman of twenty-three. Nine months before I saw her she had an attack of complete hemiplegia with delirium, from cold and bad nursing after childbirth; the delirium only lasting for a fortnight, the hemiplegia lasting in a

¹ Journal of Mental Science, Oct. 1868; Med.-Chirurg. Review, Oct. 1870.

² Journal of Mental Science, July 1870.

severe form for nearly three months; then slowly recovering, until at the end of nine months the one side was nearly but not quite as strong as the other. She was then mentally agitated about something, and subjected to religious excitement, and became furiously maniacal. She remained so for nine days; and, very curiously, during this attack of mania and for a few days after it had subsided, the remaining traces of hemiplegia quite disappeared. After being rational and free from excitement for a week, they again returned and are still present. This case I treated with thirty-grain doses of chloral at night, which produced eight hours' sleep. I saw her on the sixth day of her excitement. She had no medicine that night, and did not sleep at all. On the following night she had the chloral, slept, and was rather better in the morning, but still maniacal. The medicine was again repeated at night; she slept well, and was perfectly sane and rational when she awoke in the morning, and has remained so ever since. After the hemiplegic symptoms returned, I put her on strychnine in $\frac{1}{16}$ -grain doses three times a day; and now, at the end of two months, she assures me that she has rather more power in her hand.

Sensations of fulness in the head, confusion, or giddiness, are much more commonly experienced before the insanity is fairly developed than after. They occur most frequently in climacteric and senile insanity, and, so far as my experience goes, are not specially interesting as giving indications for either prognosis or treatment. As frequent premonitory symptoms of well-marked psychosis, however, the case is different, and they then unquestionably, as a general rule, indicate tonic and supporting treatment, with soporifics at night.

Pain.—Severe pain of a neuralgic character in the head is also a symptom that generally belongs rather to the coming on of insanity than to its full development. In the six cases I have referred to in which it was present it was a bad sign, especially if at the back of the head. General paralysis is sometimes ushered in by such pain. It was present in two cases where there was partial hemiplegia. Its treatment I do not think requires special notice, except that, occurring in an insane person, it is usually more necessary to do something to relieve it, from the diminished self-control of the patient.

Anæsthesia, &c.—Anæsthesia, or deadened reflex action, are usually symptoms of the gravest import. In five of the seven cases where they occurred they indicated incurable organic disease of the nervous system; the other two were those cases of rheumatic insanity to which I have referred, in both of whom those symptoms were present.

Special Senses.—If the special senses are markedly affected as a concomitant of insanity, it is a grave symptom. I am not now speaking of hallucinations of the senses; I am not going to enter on that subject at all. They lie on the boundary line between the bodily and the mental symptoms of insanity, and would require a far longer space than is at my disposal in this article. The special senses are seldom in any way affected in insanity except as the result of organic disease in the brain of a hopeless type.

Pupils.—Deviations from the normal state of the pupils in insanity were present in a marked manner in one-fourth of all the cases. This is much more frequent than was formerly supposed to be the case, and less frequently than Dr. Nasse of Siegburg,¹ the latest writer on the subject, makes it out to be. He does not give the proportion in which he found this symptom in recent cases of insanity, but out of 229 chronic cases he found only 83 with normal pupils. He looks on it as by no means an unfavourable prognostic. He connects it with disturbance of the innervation of the region of the facial and hypoglossal nerves, saying that it is often associated with slight distortion of the mouth, protrusion of the tongue to one side, or lateral dragging of the uvula. These symptoms, he thinks, must be caused by slight pathological changes in the brain, such as small sanguineous extravasations. He makes no attempt to prove the existence of those from pathological examination. His researches, however, seem to have been very careful, and are undoubtedly important. If in so many cases as he describes we have this tangible disturbance of motor function, it would seem to prove that the actual disturbance of nerve function in insanity is very wide-spread in the nervous centres, and is of a pathological character closely allied to what we know causes

¹ Allgemeine Zeitschrift für Psychiatrie, 1863. Trans. by Dr. Sibbald, in Journal of Mental Science, Jan. 1870.

purely motor disturbances. My observations agree with his so far in regard to the prognostic significance of inequality of the pupils, or their comparative insensibility to light, or states of dilatation or contraction. Undoubtedly we find in general paralysis that all those are apt to be far more distinct and constant than in any other variety of insanity; but it is an important matter if we can feel assured that great inequality of the pupils need not in the least make us prejudge the case as not likely to recover, or interfere with our treatment. I have observed a condition of the pupil in an epileptic which I have not seen described. The patient is a youth of 17, who has taken epileptic fits from birth. After each fit, just when the tonic spasm has ceased, if the eye is kept open and the pupil watched, there occurs what appears to me to be an epileptic convulsion of the iris. It dilates to its utmost extent and then contracts rhythmically for over two minutes at least. The movements are, of course, slower than the jerking convulsions of the voluntary muscles, but appear to me to be of the same character. From what I have observed in other cases too, I am inclined to think that the hitherto unexplained movements of the iris during and after an epileptic fit, are in reality of the nature of the spasmodic movements of the voluntary muscles. As a prognostic I would look on permanent contraction of the pupil as the very worst omen that can be deduced from an examination of the eye in insanity.

I am not aware that mere inequality of the pupils of itself gives any special indication for treatment, but I think we may take into account sluggishness to light, dilatation, or contraction, as signs which, along with other things, may lead to important therapeutic measures. Great dilatation generally marks weakness of tone of the nervous system. Anæmic insanity often has the symptom, and iron, quinine, and good diet are the natural remedies. A predisposition to phthisis had better be remembered to be looked for and inquired about when this symptom is present. In regard to contracted pupils, I think it will be generally found that opium will not do well where it exists, while bromide of potassium, of all the neurotic medicines, will do best, and be best stood by the system if neurotics or sedatives are required at all.

I have dwelt but little on the precise significance of the preceding groups of nervous symptoms in regard to the psychical derangements, because unfortunately that is a point on which precision of view is as yet impossible. It has always seemed to me plain, however, that such affections as general paralysis and epilepsy and those rheumatic cerebro-spinal cases I have mentioned, where we have both the mental and motor functions of the nervous system affected, will be the key to explain the true pathology of what is now called ordinary insanity. Even such "ordinary" cases, if they live long enough, generally show a tendency to degeneration of the nerve-tissue that is concerned in motor and sensory acts. I believe it to be an absolute delusion and a mistake to suppose that it is ever possible for the cerebral convolutions to be far disordered in their function without affecting the other parts of the great nervous apparatus over which they rule and to which they are so intimately connected. The more closely each case is studied, the physician looking at it with the ordinary physician's eyes, and not with those of either the psychologist or the lawyer, the more will this be found to be the case. Taking the case of acute excitement which had been preceded by hemiplegia, to which I have referred, if any one had seen it in the acute stage, examined the patient, and not inquired into the history of the case, it would most likely have been pronounced to be a case of ordinary acute mania. In reality this would have thrown no light on it whatever. I think it is self-evident that we penetrate somewhat deeper into the mystery of the real disease if we study the case from the beginning, connecting the original hemiplegia with the puerperal condition, when, the nervous system being liable to all kinds of influences from without, the patient was exposed to cold and bad nursing. The child having been an illegitimate one, and the girl a respectable person who had been promised marriage, she was suffering from great mental anxiety and shame. No doubt it was this severe exercise of the brain convolutions that determined the congestion or slight inflammation to them as well as the motor centres, and there resulted delirium as well as hemiplegia. In the course of convalescence, and when the motor centres had almost healed, a severe exercise of the cerebral convolutions again occurred in the shape of mental

anxiety and religious excitement, and the result was the attack of severe brain excitement during which I first saw her. The excited action of the brain-cells was so great, that they made the still slightly imperfect motor centres act in an apparently perfect manner while this excited action continued. During this same excited action, when the case was fully examined into, it was found not only to be causing mental symptoms, but to have raised the temperature of the body up to 100.1° ; to be causing the heart to act at the rate of 132 beats per minute; to be affecting the digestive organs, so that the tongue was furred, the appetite gone, and the bowels costive; and to be causing a rapid disintegration of the fat and muscle, as shown by emaciation and loss in weight. The mental derangement, looked at simply as a part of all this train of symptoms, surely possesses far more interest than if it was isolated, looked at by itself, and called "acute mania." And if they had been treated from the same standpoint in a haphazard way by a large dose of opium, or tartar emetic, or starvation, there can be little doubt that the patient would have suffered from this one-sided mode of looking at her disease by a very prolonged if not incurable attack of brain excitement. I merely take this case as an illustration, as I had before referred to it. Many of the others showed the connection between the mental and motor symptoms quite as well.

All those symptoms which I have hitherto noticed are nervous symptoms, the direct result of nervous disorder or disease. As compared with the disorders of other organs of the body in insanity, it may seem that those nervous symptoms are infrequent. If they only exist in the proportion I have mentioned, then it may be said that after all insanity is in most cases a true psychical derangement, so far as the neuroses are concerned. That, I think, is not so, for the disorders of the other organs of which I am to treat are in most cases of neurotic origin too, and it is this which gives them their special significance and interest. I am strongly of opinion that if this point is not kept in mind in their treatment, the therapeutic means adopted for their relief will be utterly unscientific and in most cases worse than useless. If a woman whose amenorrhœa is merely a part of the great derangement of the nervous system is treated

by uterine stimulants and local means before the nervous system has begun to recover its healthy tone, those measures serve merely to increase the general irritability of the nerve-centres. I find it impossible to express adequately my sense of the extreme importance of looking at the bodily symptoms of insanity in this light. This view of them lies at the very root of all right treatment of them. If it is true, we shall unquestionably be more successful in helping to a favourable termination one of the direst of maladies by always keeping it in mind.

(To be continued.)

HYPODERMIC MORPHIA IN A GENERAL HOSPITAL.

BY J. PENNOCK SLEIGHTHOLME, L.R.C.P. LOND.

So much has of late been written on the hypodermic administration of morphia, that probably by many the subject will be thought somewhat threadbare. My apology for writing on the subject is, that during the last two years—1869 and 1870—while house physician to the Manchester Royal Infirmary, I administered hypodermic morphia almost daily, acting under the direction of the physicians to the Infirmary. During the period above mentioned I gave at least two thousand injections of morphia to patients suffering from various diseases, and it very often happened that as many as six or eight injections were given in one evening to different patients in the medical wards. Under these circumstances, I trust that a brief account of my experience of the effects of this important remedy may not be without interest to the readers of the *Practitioner*.

With one exception, I never saw any immediate ill effects follow the use of hypodermic morphia, and only in one case any great evil result from its prolonged use. The former case was as follows:—A young medical man, of sound constitution and in good health, who had never before taken morphia hypodermically, partly as an experiment and partly with the hope of relieving some slight restlessness, injected himself, at about three o'clock in the morning, with gr. $\frac{1}{8}$ of morphia. Immediately after the injection he fell down on the floor in a state of syncope, and had slight convulsive movements on one side of the body; consciousness did not entirely leave him, and after lying still for about ten minutes he was sufficiently recovered to be able to go to the next room and help himself to a couple of glasses of

sherry. After this the feeling of faintness gradually passed off, and he slept for about two hours; but on rising at eight in the morning, the same feeling of faintness returned, accompanied with great pallor. These symptoms were relieved by a dose of brandy, but did not entirely cease until noon the same day. The fact that the faintness returned in so severe a form several hours after the injection, is, I think, sufficient to make it improbable that the first feeling of faintness was merely caused by the nervousness which a person injecting himself for the first time might be supposed to feel. The case in which evil resulted from the long-continued use of morphia injections was that of a man, aged about 40, affected with wasting palsy, who had first used morphia hypodermically to relieve intense neuralgic pains in the limbs affected with this disease. At the time I first saw him—in 1869—the muscular atrophy had remained stationary for about two years, and the neuralgic pains had ceased for about the same time; the use of the morphia had developed in him a well-marked “morphia habit,” from which he was endeavouring gradually to free himself by taking diminished doses; and in August 1870, when I last saw him, he told me that he had almost entirely given up the use of morphia: his muscular atrophy still remained stationary.

In delirium tremens, I have frequently given hypodermic morphia in doses varying from gr. $\frac{1}{4}$ to gr. $\frac{1}{3}$, and, as a rule, I have been disappointed with the effect of the injection; for, although it has occasionally produced sleep, yet I am sure that in a greater number of cases its use has been followed by increased excitement. From a somewhat limited experience of chloral in doses of from 30 to 40 grains, I am inclined to think that it is a much more certain remedy in delirium tremens than either morphia or bromide of potassium. I remember one case, however, in which, after chloral, hypodermic morphia, and bromide of potassium had been given without effect, a small dose of morphia with antimony—gr. $\frac{1}{4}$ of the former, and gr. $\frac{1}{6}$ of the latter—given at the suggestion of Dr. Wilkinson, was almost immediately followed by sleep; and the same effect followed the use of this remedy the following night, when there was a slight return of the delirium. As regards the use of morphia injections in cases of delirium following severe injuries, I must

speaking with less certainty, as these cases in the Manchester Infirmary did not come so much under my own observation; but I have a decided impression that, at least in many of them, the injections were followed by increased delirium and excitement. In cases of acute chorea occurring during the period of early sexual life, and accompanied, as such cases usually are, by considerable maniacal excitement, morphia given hypodermically did not generally appear to have any effect in producing sleep or allaying excitement; whilst in the two or three cases in which I have seen chloral given, its use was almost immediately followed by sleep of five or six hours' duration. In one case only have I seen hypodermic morphia do good in acute chorea, and this was one in which the disease commenced in a young man during an attack of acute rheumatism with pericarditis: in him the injection of gr. $\frac{1}{4}$ of morphia almost invariably produced sleep, with, of course, the temporary cessation of the choreic movements. In most cases of acute rheumatism, the injection of gr. $\frac{1}{4}$ of morphia at bed-time has appeared to me of great advantage, rarely failing to be followed by sleep, or at least several hours' freedom from severe pain. In this disease, I think that in hospital practice it is the best and most convenient mode of giving an anodyne at bed-time. In one case of acute rheumatism occurring in a man accustomed to the free use of alcohol, and accompanied by very violent delirium—the “cerebral rheumatism” of Professor Trousseau—this remedy had a markedly beneficial effect: gr. $\frac{1}{4}$ was injected twice daily, and its administration was usually followed by composure and sleep. In this case, I suppose that, if we believed the theory that in rheumatism accompanied by great delirium there is a metastasis of the rheumatic inflammation to the membranes of the brain, we should consider that opium or morphia in any form would be contra-indicated.

In cases of valvular disease of the heart, gr. $\frac{1}{6}$ of morphia was frequently given hypodermically at bed-time, acting upon the advice given by Dr. Clifford Allbutt in a former number of the *Practitioner*. Its effect was almost invariably beneficial, and it rarely failed to relieve the insomnia which forms so distressing an accompaniment of these affections. It appeared to be equally effective in aortic and in mitral disease, and also in cases where

both valves were affected. I have never seen any ill effect follow its use in such cases, and the patients would always eagerly ask to have the remedy repeated at the proper time. In valvular disease the dose never exceeded gr. $\frac{1}{6}$, nor was any increase in the dose required when the injections had been continued for many weeks. I have never seen this remedy employed in valvular disease accompanied with renal degeneration, nor do I think it would be wise so to employ it. In two cases of aneurism of the arch of the aorta, both of which eventually proved fatal by bursting externally, hypodermic morphia was used for many weeks, and its effect in relieving the intense pain with which both cases were accompanied was very great; not only did it relieve pain, but it at least assisted the patients to await with fortitude and composure the daily expected but somewhat deferred approach of sudden death. In one of the cases the dose was gradually increased to gr. $\frac{1}{2}$, and in the other to gr. $\frac{1}{3}$ twice daily. These two cases, and a few others in which the patients were suffering from malignant disease, were the only ones in which it was found necessary to increase the dose beyond gr. $\frac{1}{4}$.

In conclusion, I may say that when hypodermic injections of morphia were used with the intention of relieving pain, they almost invariably succeeded in doing so, no matter how severe the pain might be; that when sleep was prevented by severe pain, the pain was relieved and sleep generally followed; but that when sleeplessness depended upon or was accompanied by great excitement or delirium—as in mania, delirium tremens, acute chorea, &c.—the injections not only frequently failed to produce sleep, but were often followed by increased excitement and delirium.

OBSERVATIONS ON THE HYGIENE OF VISION.

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PART II.

THE various sources of physical imperfection that are inherent in the structures of the eye become causes of discomfort, most frequently, by creating a necessity for inordinate muscular exertion. In order to make this clear, it will first be necessary to glance at the muscular efforts that are required for normal vision. These are of two kinds: the accommodation, which optically adjusts each eye singly, for the object to be looked at; and the convergence, which directs both eyes in such a manner that the image of the object shall be formed upon the yellow spot of each. The accommodation provides for clear and defined images; the convergence for single vision with the two eyes.

The first essential for the formation of a clear and defined image is that the rays of light proceeding from the object looked at shall be accurately focussed upon the percipient layer of the retina; and the fulfilment of this condition implies also the existence of a definite relation between the refracting power of the eye and the length of its antero-posterior axis. In a normal or ideally correct eye, this relation is such that, in a state of rest, the parallel rays proceeding from infinitely distant objects are those which are correctly focussed; and it follows that all divergent rays, proceeding from some nearer point, would have their focus behind the retina. As a matter of fact, however, the eye never recognizes very small departures from parallelism; and we may, for all practical purposes, consider those rays parallel which proceed from objects more than about twenty feet distant.

Within this limit the rays begin to be divergent, and become more so the nearer to the eye the point from which they proceed. If the normal eye remain at rest, therefore, it will have clear and distinct vision of objects from the horizon to a distance of twenty feet. Within this distance objects will appear more or less dim, and the nearer they are the greater will be the dimness.

Through the action of the ciliary muscle, however, the eye is enabled to increase its refractive power, and hence to obtain clear vision from divergent rays. As the object of regard approaches nearer and nearer, the normal eye calls its ciliary muscle into activity, and the divergent rays are still focussed upon the retina. At length, however, a point is reached at which the muscle can make no greater effort. This is the "near point" of distinct vision, and within it all objects appear dim. If we take a page of print, and bring it gradually towards the eye, we shall find that at some definite distance the characters are no longer distinguishable.

In order to prove that the dimness of near objects is due to the divergence of the rays proceeding from them, we have only to look at the same page through a pinhole in a card. The effect of the small aperture will be to cut off the external or more divergent rays of the pencil proceeding from each letter, and to admit only those that are central and approximately parallel. The result will be that the page can be read much nearer to the eye than before; and a man of middle age, whose unaided near point for small type is at twelve inches, will be able to read it at three inches through a pinhole.

The change which takes place in the adjustment of the eye, when it is turned from a distant to a near object, is known as "accommodation;" and the occurrence of an actual change may be proved, not only by reasoning, but also by direct observation. We are indebted to Donders for a simple experiment for this purpose. If we hold a veil at some inches from the eye, and a book beyond it at a greater distance, we can at will see accurately either the texture of the veil or the letters of the book, but never both together. If we see the texture of the veil, we cannot distinguish the letters of the book; if we read, the veil produces only a feeble, almost uniform, obscuration of the field of vision; of the separate threads we see scarcely anything.

The craving of the eye for clear images is one of the strongest of our instincts; and wherever we look, the adjustment necessary to its gratification is effected, not only without any voluntary effort, but even without any consciousness of change. If we vary the experiment of Donders, by moving the book out from behind the veil to a lateral position with regard to it, still preserving the original distance of each from the eye, we shall find that we see either the texture or the letters clearly as the gaze turns from one to the other; and that unless the nearer of the two is too near for comfortable vision, we have no knowledge either of effort or of relaxation in doing so.

The manner in which the increased refraction of the eye in accommodation is brought about, is by an increase in the convexity of both surfaces, but chiefly of the anterior surface, of the crystalline lens. The power of effecting the change is at its maximum in early life, when the texture of the lens is soft. From about the age of eleven the power gradually diminishes; and, as the lens increases in firmness, the near point recedes further and further from the eye. For many years this change is productive of no inconvenience; but, as life advances, a time comes when the near point is too far away for the requirements of the individual. In reading, for example, the distance of the page must be so great that the eye no longer receives sufficient light from it; and the elderly reader is forced either to read only in good daylight, or to place his artificial light between his eye and the page. Such a condition is called *presbyopia*, or aged sight; a term which should be strictly limited to impairment of accommodation in healthy eyes, depending upon the changes incidental to advancing life. As these changes are progressive, none but any arbitrary line can be drawn at the commencement of *presbyopia*; and, as they are physiological, they are to be regarded with no anxiety. The inconveniences attendant upon *presbyopia* are to be relieved, in great measure or entirely, by the use of proper spectacles; and the time when these should be employed must be determined by two considerations—the distance of the near point, and the occupations of the individual. Their mode of action, and the principles which should govern their application, must be reserved for future consideration.

As regards accommodation, therefore, we have arrived at the

point that the normal eye is absolutely passive or at rest when directed to objects more than twenty feet distant; that within this range its power of adjustment comes instinctively and involuntarily into play, at first slightly, but in a constantly increasing degree as the object approaches, until at last a near point is reached, within which the accommodation can no longer overcome the divergence of the rays of light, and no clear vision is possible except by the aid of some form of optical instrument. Such an eye is said by Donders to be "*emmetropic*."

The maximum of accommodative adjustment of which an eye is capable, like the maximum of any other muscular effort, cannot be long maintained without fatigue; and hence no one could read continuously at the actual near point. The page or the work must be held so far beyond the near point that the effort required for adjustment is not excessive; and it has been ascertained that an exertion of about half the total power of accommodation is as much as can generally be borne for any lengthened period. A person whose near point has receded to a distance of ten inches from the eye, would find any continuous work irksome, unless the object looked at could be kept nearly twenty inches away.

It is obvious that an eye may depart from the emmetropic standard in either of two opposite directions. It may be either longer or shorter than the focal length of its refracting media. These departures from normal proportion are named by Donders *ametropia*—a word to which there is the single objection that it is liable to be confounded with emmetropia, unless we give the continental sound to the *a*. The form of ametropia in which the eyeball is too flat, in which its antero-posterior axis is shorter than its focal length, is called by Donders *hypermetropia*; and this term has been very generally accepted. The opposite condition, in which the eyeball is elongated, and the antero-posterior axis longer than the focal length, might be appropriately called *brachymetropia*, or, as suggested by Scheffler, *hypometropia*; but it is so generally known as *myopia* that this trivial appellation is not easy to discard.

It will be at once apparent that either form of ametropia modifies entirely the relations of muscular effort to near vision, so far as accommodation is concerned.

In a case of hypermetropia, where the focus of parallel rays would be behind the retina, the clear vision of even distant objects requires an effort of accommodation; and this effort is of course increased when near objects are looked at. It follows that the eyes are never at rest unless closed. The instinctive desire for clear images compels accommodation at all other times; and to turn the eyes to distant objects gives only comparative, not absolute, repose. While the faculty of accommodation is in full vigour, and especially when the degree of hypermetropia is not great, the subject may accomplish the necessary effort without sensible fatigue. But if the hypermetropia be itself considerable, or when the accommodation faculty becomes diminished either by age or by participation in general bodily weakness, the strain of constant and excessive exertion becomes more than the eyes can bear, and leads to much pain and inconvenience, as well as to dimness of vision, when the effort is necessarily relaxed.

In myopia, where the focus of parallel rays would be in front of the retina, and clear vision is obtained only from the divergent rays proceeding from near objects, the function of accommodation may remain almost entirely, or, in high degrees of myopia, entirely in abeyance. If, for example, a person is so shortsighted as to have no clear vision of objects distant more than six inches from the eye, he will have no need of accommodation unless he wishes to bring them still nearer than this—a condition seldom likely to be fulfilled.

The second faculty conducive to vision for which muscular effort is required, is that of so directing the two eyes that the image of the object looked at falls upon the posterior pole of each, or upon the yellow spot of the retina, by which arrangement single vision with two eyes is obtained. Disregarding the more complicated movements by which the eyes are directed towards objects placed laterally, we will attend only to the more common case of the fixation of some object situated at the level of the eyes, directly in front of the observer, and capable of being moved to and fro in a direct line. In such a case the direction of the eyes is accomplished almost entirely by a greater or less effort of the internal recti muscles, and is simply a greater or less degree of convergence. For distant objects the movement

inwards is trifling in amount ; but as they approach it becomes considerable, and may be easily watched by moving any small object to and fro before another person, whose gaze is kept directed to it.

The functions of accommodation and of convergence, both muscular, are both governed by branches of the third nerve, in response to impressions made through the retinae upon the optic ganglia of the sensorium. Although essentially independent acts, they are always performed together in normal eyes, and become so associated by habit, that any attempt to exert one of them singly is either painful or futile. A person with normal eyes, not yet become presbyopic, will read for any reasonable time without fatigue, holding a book eighteen inches from the eyes, and exercising the necessary degree both of accommodation and of convergence. The same person will also gaze without fatigue over a distant prospect, exercising neither accommodation nor convergence in any appreciable manner. But if we set him to read at eighteen inches, with magnifying spectacles of eighteen inches' focal length, or to gaze at the landscape with concave spectacles of the same power, the eyes will speedily ache beyond endurance. In the former case the spectacles render the rays of light parallel, and so the accommodation is at rest, while the convergence is exerted to fix the eyes on a near object. In the latter case the spectacles render the rays divergent as if they proceeded from an object eighteen inches distant, and accommodation to that extent becomes required ; while the real distance of the scene precludes any corresponding effort of convergence. Convergence in the absence of accommodation, and accommodation in the absence of convergence, are equally painful and distressing.

The action of a prism in displacing the apparent position of objects may be used to prove the character of the uneasiness produced by either of the experiments with spectacles above described. A pair of prisms, each of seven and a half degrees of angular measurement, placed with bases inwards before the convex lenses, or with bases outwards before the concave lenses, will instantly remove all inconvenience. In the former case they relax the convergence to parallelism, to correspond with the relaxed accommodation ; in the latter they produce con-

vergence to a point 18 inches distant, to correspond with the effort of accommodation. In the former they relax muscular action; in the latter they call it into play; but in both the discomfort and fatigue resulting from the derangement of the natural harmony between accommodation and convergence are immediately relieved. It is necessary, of course, that the prisms should not be rotated about the visual line, but that the thickest and thinnest part of each should be accurately in the same horizontal plane, so as to avoid displacement of either image upwards or downwards.

In ametropic eyes, of whatever character, the natural relation between accommodation and convergence is broken through. The hypermetrope is always exerting a degree of accommodation in excess of his convergence; the myope, a degree of convergence in excess of his accommodation. Early habit and constant practice will do much to diminish the irksomeness of this necessity; but still it seriously impairs the working power of the eyes, and perhaps even more than the actual amount of effort demanded is the cause why their muscles break down and fail. The muscles of accommodation of the hypermetrope, the muscles of convergence of the myope, are those in which the failure becomes apparent.

In order correctly to estimate the values of the various factors concerned in the muscular efforts of the eye, it is necessary to reduce them all to a numerical standard. For this purpose the degree of ametropia is expressed by the reciprocal of the focal length, in Paris inches, of the lens that corrects it; and the power of convergence by the degree in angular measurement of the prism that it can overcome. For example, a myopia may be such that a six-inch or an eight-inch lens corrects it perfectly, and enables the myope to see the horizon. We then describe it as being equal to $\frac{1}{6}$ or $\frac{1}{8}$, using the reciprocal instead of the whole number, because the myopia that requires a six-inch lens is greater than that which requires an eight, and the fraction $\frac{1}{6}$ is greater than $\frac{1}{8}$. A myopia equal to $\frac{1}{6}$ will plainly be one in which the person has no distinct vision, when unaided, of any object that is distant more than six inches from the eye; but the concave lens impresses upon parallel rays a divergence as if they proceeded from a point six inches behind it, and thus enables

them to be united upon the retina. Hypermetropia is expressed in the same way, but its degree is less easily determined, on account of the action of the ciliary muscle in diminishing the effect. For example, a person may have hypermetropia that requires an eight-inch convex lens for its absolute correction, so that rays passing through this lens will be united upon the retina when the eye is at rest. But the ciliary muscle may habitually overcome and conceal half this hypermetropia, in which case it would be said to render it *latent*, leaving the other half *manifest*. The person would then say that a convex lens of 16-inch focal length improved distant vision, while a stronger one rendered it obscure; and it would still be left to discover how much the ciliary muscle was acting, and how much hypermetropia was rendered latent by its means. This difficulty is overcome by the use of atropine, which for a time paralyses the accommodation, and brings the latent hypermetropia to the day. For this purpose the solution of atropine or its sulphate should be of the strength of at least two grains to the ounce, and a large drop should be placed in the eye at least two hours before the time of examination. Young subjects will sometimes entirely conceal even very high degrees of hypermetropia, and will reject the weakest convex glass until atropine has been used. Without atropine, however, we shall often find that some weak convex glass, as a 30 or 36-inch, improves distant vision, and we then say that there is *manifest* hypermetropia equal to $\frac{1}{30}$ or $\frac{1}{36}$. After the atropine, we may find that a convex of fifteen or eighteen inches is required, and we say that the total hypermetropia is equal to $\frac{1}{15}$ or $\frac{1}{18}$. The difference between the manifest and the total is, of course, the amount that is latent, and this is the measure of the habitual accommodation effort.

For estimating the convergence we require pairs of prisms, and we place a prism, with its base outwards, before each eye, until the internal recti muscles can no longer fuse the two images into one, and double vision is the result. The most powerful prisms that can be overcome, so as to maintain single vision of an object in spite of them, furnish the measure of the strength of the convergence faculty. Perhaps the best test object is a lighted candle, in an otherwise darkened room, at a distance of six or eight feet from the spectator. The prisms are named by their angular

measurement in degrees, so that the higher numbers are the stronger, and the whole numbers are used instead of fractions. If the eyes can overcome a pair of seven degrees, and are beaten by a pair of eight degrees, we say that the total convergence is equal to fourteen—the sum of the highest pair that can be conquered by the muscles.

In estimating either myopia or hypermetropia, it will sometimes happen that the patient finds it difficult to decide between two or three lenses of nearly equal power, and gives the preference now to the stronger, now to the weaker of them. When this is so, we must suspect the presence of a curious complicated form of ametropia, known as *astigmatism*.

The surface of the cornea is not always, or even usually, a portion of a perfect sphere. If we draw two imaginary lines bisecting it, one vertical and the other horizontal, and call them the vertical and horizontal meridians, we may easily find that there is, in most eyes, a slight difference in the curvature in these two directions. If the eye is emmetropic in one of the meridians, it will probably be slightly ametropic in the other; and, if ametropic in both, there will still be a difference between the two. It has been surmised that by this arrangement the eye is preserved from ever being accommodated so precisely for the plane of a surface as to lose all definition on either side of it; that it gains, indeed, something of the quality that is called penetration in microscopic object-glasses. Be that as it may, the difference is almost universal, and makes itself felt by the circumstance that few people have precisely the same vision for horizontal and for vertical lines. In many instances, however, the meridians of greatest and least curvature are not exactly vertical and horizontal, but occupy some intermediate positions, though always at right angles to each other. The effect of the difference between them is that the eye, as a whole, has no focus; and hence it is said to be *astigmatic*.

When astigmatism is present in any marked degree, its effect upon vision is to require two separate accommodation efforts for the different aspects of each object that is looked at. If we take small type as an object, and the form in which there is more hypermetropia in the vertical than in the horizontal

meridian as an example, the horizontal boundaries of every letter will require a greater accommodation effort than the vertical boundaries, as if the former were nearer than the latter. Each letter, under such circumstances, has first to be defined from those before and after, next from those above and below it. The muscle of accommodation, by this necessity, is called upon for an indefinitely greater effort than would be involved in the maintenance of even a higher degree of exertion; and fatigue is soon experienced.

In the case of the muscular efforts that are necessary to clear vision, the fatigue, and consequently the relaxation of muscle, necessarily produce dimness of sight. The myope, who can no longer maintain the degree of convergence which his imperfection demands, suffers from double vision, which, although seldom sufficient to give two separate and detached images of each word or letter, is yet sufficient to obscure its outlines. The hypermetrope, or the astigmatic, who can no longer maintain the necessary accommodation effort, loses the outlines in a similar way, although from a different cause. In either case the eyes are first said to "ache," and then, if work is continued, vision becomes misty and dim. Excessive nervous and muscular effort produces active hyperæmia followed by passive congestion; and mental anxiety often aids those physical changes in sowing the seeds of disease.

As might reasonably be anticipated, the power of the eyes to maintain muscular effort, or to endure the strain consequent upon a severance of the natural harmony between accommodation and convergence, is chiefly dependent upon the general vigour of the system. The half-starved needlewoman breaks down utterly before a requirement which would be scarcely felt by a healthy and well-nourished person. And on this general principle it frequently happens that a physical defect in the eyes may exist for many years unperceived, and may be suddenly brought into prominence by some change in external circumstances or general vital activity. In the manner already stated, the power of accommodation, and hence the power to overcome hypermetropia or astigmatism, diminishes gradually with advancing life; but the gradual diminution may steal on almost unperceived, and may first make itself felt after some

illness or accident, or after some period of unusual mental or bodily exertion, to the direct influence of which it may then be erroneously attributed. I have hence many times seen cases in which an obvious physical defect had been overlooked, or rather had not been looked for, because it was supposed that a recent impairment of vision could only be due to causes newly in operation.

In the next paper I shall proceed to show in what way the relations of muscular effort to vision may be investigated, and how abnormalities in these relations may be relieved.

(To be continued.)

Reviews.

A Manual of Practical Therapeutics, considered chiefly with reference to the Articles of the Materia Medica. By EDWARD JOHN WARING, M.D., F.L.S., &c. &c. Third Edition. London: Churchills, 1871.

So long as we are obliged to wait for that good time coming in which we shall be presented with a really philosophical treatise on therapeutics, there is good reason why the profession should be grateful for works of the class which Dr. Waring's Manual represents. We are not among those who believe it to be impossible, even at the present time, to lay down the outlines of a scheme of therapeutics based on really scientific principles; but we must allow that the mere attempt would involve prodigious labour, and that the work could only be very imperfectly executed at present. In the meantime those writers do good service who form complete catalogues of those remedies for the efficacy of which there is trustworthy evidence, and who give, under the heading of each agent, a complete and concise *résumé* of all that is known as to its effects upon the organism. And it must be confessed that this work, when well carried out, is greatly more useful than any of the crude and unreal attempts at therapeutic classification which are displayed by the ordinary manuals of *Materia Medica*. Dr. Waring's book, which is greatly improved in its present edition, is mainly empiric in its teaching, and in so far as it adheres to that plan it is irreproachable. More than three-fourths of the volume is occupied with a simple alphabetical catalogue of drugs, the action of each remedy being fully discussed in the light of such empirical evidence as has been afforded by the highest authorities in practical medicine. The next 150 pages, or thereabouts, are occupied with a more general enumeration of therapeutic agents, including not merely drugs, but a variety of remedies, such as baths, electricity, blood-letting, and so on; in fact, a general statement of the means of treatment which the physician has at his disposal. The volume concludes with a useful Index of Diseases: under each malady the reader will find a list of all the principal remedies in repute for its treatment, those which are specially well authenticated being indicated by an asterisk.

Of the first and principal portion of the work we can speak with high praise; it is a laborious, and at the same time a judicious compilation, from which superfluous matters have, for the most part, been successfully excluded: and as the arrangement is simply alphabetical, the reader experiences no difficulty in at once turning to any drug which he desires to refer to. Each article is introduced by a short statement of the leading features of the physiological action of the drug in question, so far as they are known; and then follows the detail of the various diseases in which it has been found useful, with exact references to the authorities on whose evidence the statements rest. It cannot be pretended that there are no omissions: indeed we have observed several instances in which important researches on the actions of particular drugs have escaped the author's notice; still it may be justly said that a larger bulk of well-selected practical information will be found compressed within the 676 pages of the first part of the volume than can be found in any other treatise in our language.

We cannot say quite as much in praise of the second part of the work, in which the following subjects are treated:—Acids, Acupuncture, Alkalies, Alteratives, Anæsthetics, Anthelmintics, Antidotes, Antiphlogistics, Antispasmodics, Astringents, Baths, Blisters, Blood-letting, Carminatives, Cataplasms, Cathartics, Collyrium, Counter-irritation, Derivants, Diaphoretics, Diuretics, Electricity, Electro-puncture, Emetics, Emmenagogues, Endermic method, Enema, Expectorants, Gargles, Hypodermic method, Ice, Inhalation, Injection, Insufflation, Issues and Setons, Leeches, Narcotics, Refrigerants, Spongio-piline, Stimulants, Suppositories, Tonics, Water. The mere reading of this series of headings would prepare one to find that the subjects they indicate are dealt with in a somewhat loose and unsatisfactory style, and that is certainly the case; indeed we cannot perceive the use of adding this section to the volume, unless the author had dealt with the whole principles of therapeutics (at least in outline) in a connected and logical manner. On the contrary, although there is a considerable amount of useful information scattered through the pages of this section, there is no method in it whatever, and there are some very serious omissions. Surely, for example, a sketch of general therapeutics ought to have included a clear and authoritative scheme of dietetics as applied to the treatment of disease, whereas we find nothing on the subject. Again, in dealing with the subject of Baths, the author, it is somewhat startling to find, says nothing about the exceedingly important development which has been given to the use of the cold plunge-bath in pyrexial diseases by the researches of Liebermeister, Jürgendsen, and many other continental physicians. And with regard to the medical applications of Elec-

tricity, we regret to observe that the author has omitted to avail himself of the labours and researches of the greatest masters of the subject. There are references, for example, to authors who (like Golding Bird) are entirely out of date; but not a word is said of Remak, of Ziemssen, of Meyer, or of Benedikt; and only the most cursory mention is made of Duchenne. As might be expected, therefore, we altogether fail to gather, from this section, any clear idea of the present state of knowledge in regard to the specifications of the different forms of electricity; indeed, we are obliged to remark that the author's discussion of this subject is so inadequate as to be altogether misleading, and that the student would do well to avoid reading it entirely.

We regret to be obliged to say this much in disparagement of a work which, on the whole, is very useful and complete. We would finish our remarks, therefore, by repeating that the book has a high degree of practical utility. It is admirably adapted to lie on the consulting-room table; the practitioner will find it of the greatest service as offering him a copious choice of remedies which have received reliable testimony in their favour. Certainly no other treatise with which we are acquainted offers so convenient a handy-book for the country practitioner, who is removed from the centres of information, and who must frequently find himself in a position in which it is highly desirable that he should be able quickly to turn to an authority which will afford him a good choice of serviceable remedies in cases which are difficult and intractable.

Opium and the Opium-appetite: with Notices of Alcoholic Beverages, Cannabis Indica, Tobacco and Coca, and Tea and Coffee, in their hygienic Aspects and pathologic Relations. By ALONZO CALKINS, M.D. Philadelphia: Lippincott.

THIS book is as thoroughly unsatisfactory a performance, upon a great and most interesting subject, as we have ever met with. We are astonished at the unbounded assurance, and the complete misunderstanding of his own qualifications for the task, that have led Dr. Calkins to undertake to write a book about opium and opium-eating, and about popular narcotism generally. But we are even more surprised at the prodigious dulness of the book; one would have thought that the smallest acquaintance with the art of book-making might have taught a man how to deal with his subject at least in such a manner as to give it a certain amount of picturesque attractiveness. Our readers will probably scarcely believe that Dr. Calkins has quite failed in this latter aim: but we give them our word of honour that the failure is absolute. For our own part, we opened the volume

with delightful anticipations; we thought it quite impossible that any writer possessed of medical knowledge could write a book on such a subject that should be neither scientifically valuable nor popularly interesting. Alas! we were cruelly undeceived. The style is stilted and every way bad; the facts are clumsily put together, and scarcely any of them new; the deductions are inconsequent and inane. It is a long time since we have been so moved to editorial wrath as we were moved by this book. We really must be excused for doing sharp justice upon the author, with whom we had no previous acquaintance whatever, but who has committed high crimes and misdemeanours, in a literary no less than a scientific point of view. We shall take, from his chapter of "Deductions," three specimens of his handiwork. The first is an example of style and construction:—"Longevity is more liable to curtailment under the operation of adversative causes and conditions the rather be they physical or mental either." (Shade of De Quincey! this unnatural murderer of his mother-tongue has dared to call thy silver pen "pretentious," and the like!!) The second is a specimen of his chemical knowledge—he speaks of the alcohol of our intoxicating drinks as "*Amylic* alcohol." The third is an example of his practical experience of his subject:—"Laudanum is the most stimulative, morphine the most sedative, the gum in mass the most toxic." And all this within three short pages!

We shall say not a word more—except this. Bad as this book is, we lately saw a most favourable review of it, in a non-medical journal of a high class, and indeed it was in this way that we came to hear of its existence: we therefore implore our lay contemporaries, when they *do* review scientific or semi-scientific books, to adopt two precautions. In the first place, we would earnestly beg them to make it a rule to employ a reviewer who knows something about the matter in hand; and secondly, difficult or well-nigh impossible as the task must appear, we would adjure them to compel that reviewer actually to *read* the book before he writes his critique.

The Physiological Anatomy and Physiology of Man. By ROBERT B. TODD, WILLIAM BOWMAN, and LIONEL S. BEALE. A New Edition by the last-named Author. Part II. of Vol. 1. London: Longmans, 1871.

WE are glad to see the second part of this valuable work, of which the first edition constituted one of the greatest steps in Histology and Physiology ever made in this country; enriched as it was by the original observations, on many different points, of its able authors. The accuracy and value of those researches are sufficiently testified by the circumstance which we notice, that

whenever matters of fact and direct observation were given in the last edition, they are retained in the present. It is when theory was introduced that the present editor has found it necessary to introduce modification and addition. The present part is occupied with the consideration of white fibrous and elastic tissue, cartilage, bone, and fat. The peculiar views held by Dr. Beale, and now well known, especially in regard to the processes of development of these tissues, are put prominently forward, and are supported by facts and reasonings that have been elsewhere made familiar to physiologists. In regard to the simple fibrous connective or mucous tissue of the umbilical cord, Dr. Beale states he has quite failed to discover anything like the arrangement of a symmetrical network of cells distributed through it, as described by Prof. Virchow. He gives drawings and descriptions from recent specimens that are so entirely dissimilar to those of the learned continental pathologist, that no one unacquainted with the fallacies of the microscope would believe for a moment that the authors were describing the same tissue. The same occurs with the fibres of tendon and elastic tissue, and Dr. Beale wholly denies that the latter ever constitute, as Virchow maintains, a tubular nutrient system. He denies, too, that connective tissue and its corpuscles play the important part in inflammation that had been assigned to them by the German pathologists, but attributes the formation of the corpuscles of pus to the presence and multiplication of particles of germinal matter (white corpuscles) which have escaped from the blood-vessels. The development of cartilage and of bone is very fully and intelligibly given. The matrix of the former he refers to the gradual condensation of the living or germinal matter of the original cartilage, whilst the lacunæ canaliculi of the latter are caused by the gradual calcification of the matrix, spaces occupied by germinal matter—the lacuna—being left; the pabulum for which is conducted along certain paths which remain as the canaliculi. The whole part is well worthy of being studied by all who are desirous of keeping up their knowledge of histology. We trust that Dr. Beale will find time to issue succeeding parts at shorter intervals than has elapsed between this part and the last; but we cannot conclude without a word of praise for the illustrations, which are prettily sketched, and materially aid in elucidating the text.

Clinic of the Month.

Treatment of Orchitis.—Mr. Hutchinson records an interesting case of orchitis from irritation in the prostatic portion of the urethra, of which the following are the principal points. A medical man, whilst in the enjoyment of good health, became the subject of stone in the bladder. Lithotomy was practised without ill results on five or six occasions, and many fragments of calculus were removed. At length, after what was believed to be a final sitting, he had a very violent rigor, followed by much vesical irritation. He recovered from this, and, although still suffering a good deal of inconvenience about the prostate, was able to go a short distance into the country and to take drives in his carriage. One day after a drive he was attacked by inflammation of the right cord and testis. Mr. Hutchinson saw him for the first time about three weeks after this occurrence. He was then very ill, liable to frequent rigors, with a dry tongue and quick pulse. Fluctuation was detected over the inflamed testis; the scrotum was not very greatly swollen, but it was dusky and cedematous, and taking all the symptoms into account, Mr. Hutchinson had no doubt that pus was present. The patient readily consented to the use of a knife, and on the following day laid the tunica vaginalis freely open, and let out a couple of ounces of stinking pus. The testis itself was now much enlarged. All the symptoms were greatly relieved by the incision. The tunica vaginalis was daily syringed out for about a week, but it rapidly took on healthy action, granulated and closed. Unfortunately, however, just as it got well the other testis was attacked; great swelling resulted, with severe pains and acute febrile symptoms. In this instance Mr. Hutchinson watched the inflammation from the beginning, and at the end of ten days, having detected fluctuation, he made an incision, expecting to find pus; the fluid, however, was serum only, and of this about an ounce and a half escaped from the tunica vaginalis. Again the incision was productive of the most marked relief; the parts healed well, and on neither side was the testis damaged. During the next two months the patient, however, had a succession of abscesses in the abdominal wall in each iliac region. These began in each instance by deep-seated pain, great swelling, and

induration, and in each case a great thickness of tissue had to be divided to evacuate the matter. Mr. Hutchinson states he has no doubt that these abscesses had their starting-point in the inflamed vas deferens. After they were all healed, the patient having continued to suffer throughout from vesical irritation, and being in the worst possible health, lithotomy was practised; a large abscess in the prostate itself was opened, and some sharp-edged fragments of calculus removed from the bladder. Mr. Hutchinson thinks it very probable that a small fragment was throughout impacted in the prostatic urethra, and is quite certain, even if that were not the case, that fragments frequently passed temporarily into that part of the canal. The urethra was in no way blocked, for a full-sized instrument could always be passed. (*Medical Times and Gazette*, April 15, 1871.)

The combined Action of Iodide of Potassium and Ozonic Ether.—Dr. John Day, of Geelong, reports a case of well-marked constitutional syphilis which for more than six months resisted all the usual remedies, and ultimately made a rapid and permanent recovery under the combined action of iodide of potassium and ozonic ether. It occurred to him that as the therapeutic properties of iodide of potassium were probably due to the small amount of iodide which was set free by decomposition of the salt in the blood and tissues, a plan might be devised for liberating it more freely whilst in the circulation. With the view of attaining this end he prescribed iodide of potassium, in doses of from four to eight grains, dissolved in water, to be taken three times a day, each dose to be followed in about half an hour by from half a drachm to a drachm of an ethereal solution of peroxide of hydrogen mixed in a wineglassful of water. The ether he then used was some that had become highly charged with peroxide of hydrogen by a process of natural change, which takes place more or less in all ethers and essential oils which have been long exposed to the influence of light and heat; he now uses in preference Mr. Robbins' ozonic ether, which is of uniform strength and great purity. The *modus operandi* of this method of liberating the iodine from iodide of potassium, he thinks may be explained as follows:—Iodide of potassium is a salt possessed of a very high diffusive power and speedily passes into the blood, from which, however, when administered in the usual way, a large proportion of each dose is almost as speedily eliminated unchanged by the kidneys. Ethereal solution of peroxide of hydrogen (or, as it is more commonly called, ozonic ether) is a substance which also has a high diffusive power and passes very quickly into the blood, where, by the catalytic action of the globules, its oxygen is transformed into ozone, which, on meeting with the iodide of potassium in the circulation, decomposes it and sets the iodine

free. The patient whose case he relates rapidly improved under its action, so that in a few weeks she had lost her cough and completely recovered her voice. The treatment was continued for about six months, but long before the termination of that period every symptom of syphilitic mischief had passed away, and she was left in the enjoyment of excellent health. Dr. Day has been in the habit of seeing her constantly, and is in a position to say she has not had the slightest relapse. He thinks this method of exhibiting iodide of potassium may be usefully applied to the treatment of other diseases in which iodine is indicated. (*Ibid.* May 20, 1871.)

Treatment of Poisoning by Carbolic Acid.—Mr. Charles Roberts remarks that the indications for treatment are to remove the poison from the stomach as speedily as possible, to neutralize its action, and to treat the general symptoms of collapse in the ordinary way. A mixture of olive oil and castor oil has been recommended, and employed in some cases, with the object of diluting and carrying off the poison by the bowels, on the theory that it acts only as a corrosive, and is not absorbed. As we know that it is absorbed, it would be doubtful practice to continue this treatment and to make the acid run the gauntlet of the fat absorbing surfaces of the small intestines. As carbolic acid is very slightly soluble in water, probably the speediest and most effectual way of removing it mechanically from the stomach would be to administer large quantities of warm water, or of mustard and water. As it is very soluble in glycerine, that substance with water and sulphate of zinc might be employed after the bulk of the poison had been removed by the former plan. From the serious action of the acid on the mucous membrane, the stomach-pump should be employed with great care, and probably would often be inadmissible. Mr. Roberts states that he knows of no substance capable of neutralizing the acid chemically, but its well-known affinity for albuminous compounds would point to eggs and finely mixed or powdered *raw* meat as likely to prove of service. If eggs were used, it would be necessary, for obvious reasons, that they should be very much diluted by being whipped up with milk or cold water. Milk is not coagulated by carbolic acid, and therefore would not act as a neutralizer, but it would be a more suitable application than oil to the injured mucous membrane, and less likely to produce further discomfort to the patient. The general symptoms of collapse must be treated in the usual manner by internal stimulants, and friction and warmth to the skin. The rectum would be the most suitable part to which stimulants should be applied. If raw meat were given, it might be well seasoned. As brandy dissolves carbolic acid, and is itself speedily absorbed, its admi-

nistration by the stomach would be contra-indicated. (*British Med. Journal*, May 27, 1871.)

Treatment of Gonorrhœa.—Mr. E. Noble Smith remarks that from time to time special modes of treatment, particularly in respect to injections, are advocated for this disease. Most injections, he believes, have their value, if used with discretion, and in protracted cases with variety. The indiscriminate use of copaiba and cubeb is followed in many cases by unpleasant results. Their employment should be the exception. A strong, healthy man, not over-sensitive, may take these drugs perhaps with benefit; but a strong healthy man is the exception, and the generality of patients will be found to do better upon a treatment the result of which, in Mr. N. Smith's hands, has proved eminently successful. The first indication of an attack of gonorrhœa is an itching at the orifice of the urethra, and a peculiar irritation lower down similar to that caused by ascarides, and which begets an urgent desire to micturate. If necessary, a mild purgative should be administered, but the effect of this is often to produce a subsequent irregularity of the bowels which is not beneficial, and should therefore, if possible, be avoided. A glass of warm milk, before rising every morning, often has the desired effect. The diet should be regulated, and all food should be of a plain nature. Meat should be fresh and not preserved; no condiment whatever should be allowed: beer and spirits should be strictly forbidden, and also wine, except claret, which, when diluted with water, may be taken in moderation. Coffee and tea should be interdicted; and it must be remembered that, as the patient is not to take any exercise, a diminution in the quantity of food should be observed. Early departure to bed is advisable. The directions as to diet are of the first importance, and if strictly carried out will do very much towards the recovery of the patient. A mixture, containing conium and mucilage or equivalent substances, should be given several times daily, and when *all inflammatory symptoms have disappeared*, injections may be commenced; any simple astringent will very soon effect a cure without any danger. Mr. Smith prefers the acetate of lead, but if immediate cure does not result, the injection should be changed; the great secret in using injections being to vary them sufficiently. This is more the case in gleet. In old-standing gleet the injection should be changed every three or four days and returned to again. In gonorrhœa, after the discharge has ceased, the injection should be continued for at least a week, less frequently, however—say once or twice a day. Neglect of this precaution is often the cause of gleet. This *system* of practice Mr. Noble considers to be the best. We have ourselves sometimes succeeded in curing chronic blen-

norrrhoea, when many other means had been tried and failed, by directing the patient to wash out the urethra with cold spring water every hour throughout one or two days. (*Lancet*, June 10, 1871.)

Treatment of Chorea.—Dr. West, in his Lumleian Lectures, observes that there are two forms of chorea over which mental and moral culture has a most salutary influence. In two classes of cases, however, it is inapplicable—those of partial chorea, and those in which the movements are very violent. In the latter case, splints on the legs and arms, and swathing the body completely in a soft bandage, will often, by restraining the movements, greatly diminish the resulting fatigue. But between these two there is a large intermediate class, over which moral culture and regulated movements exercise a remarkable influence. A great drawback to success is the difficulty of rousing the will to activity. Hence gymnastics are of service in proportion to age, and are more useful when practised in a class than when carried on alone. Music or a simple chant, in time with which the movements can be made, helps to fix attention and to expedite the cure. Of specific remedies, Dr. West has been able to find none which seemed to him to possess such a character. The whole class of antispasmodics—henbane, belladonna, conium, chloral, bromide of potassium—had no other effect than to cause sleep. Tartar emetic in large doses seemed of considerable service in some severe cases with dry skin. Strychnine had not seemed to him to merit the high encomiums Trousseau had passed upon it, and its use is not free from danger. The only remedy really useful, and that only in exceptional cases, is the sulphate of zinc, given in increasing doses from 1 to 20 grains. It had effected considerable good in some cases in which other remedies had failed, and in which there was no distinct indication for the use of this or that remedy. (*Ibid.*)

Iron Alum as a Hæmostatic.—A correspondent of the *Lancet* desires to bring under the notice of the profession a most powerful hæmostatic in the form of the chemical preparation known as iron alum. A strong solution of this salt in glycerine, he observes, is admirably adapted for the arrest of continued profuse bleeding when there is no large vessel to be seen, and secured by means of the ligature or by torsion. For hæmorrhage from the gums it may be applied in powder upon a piece of lint, while epistaxis may be checked by stuffing the nostrils with lint soaked in a saturated solution of this preparation. It is not suitable, of course, for arresting hæmorrhage from vessels much above the size of capillaries; but by such capillary hæmorrhage a patient may lose a large quantity of blood, which, in a person

below the standard of health, is deleterious if not dangerous. When incisions are made into congested parts, we have often a great deal of capillary bleeding, which the preparation in question is eminently fitted to control. Internal hæmorrhages may be treated with iron alum with advantage, particularly gastrorrhagia and enterorrhagia, as well as bleeding from the rectum, when it is to be used as an injection. In these last cases it may be advantageously combined with some of the preparations of opium. (*Lancet*, June 17, 1871.)

Treatment of Neuralgia.—Dr. J. Holden remarks that, in the treatment of neuralgia, hypodermic injection of morphia has come into general use. Prudence suggests commencing with small doses. This is safe, certainly, and a test for idiosyncrasy where there is no known tolerance of the drug. But to rest there is not sufficient. Frequent repetition will alleviate pain, though falling short of the real relief capable of attainment. Where the neuralgia is intermittent, Dr. Holden states he finds that a rapid and at the same time careful increase of the dose often reaches a point where the hypodermic injection acts like a charm: this is proportionate generally to the severity of the pain. He cites the following case:—A woman aged 50, with severe facial neuralgia. When the paroxysm comes on, she at once seeks for ease in the puncture. Though she is not habituated to morphia, Dr. Holden injects a grain and a half into the arm—a quantity equal to 18 minims of Dr. Anstie's solution. After the injection she feels much nausea, and sleeps for several hours; she is rather stupid the following day, but the pain has fled. Before this dose was reached, she had days of suffering, with frequent returns, and almost no benefit from injecting small quantities of morphia. Now, only a few hours can elapse before she has perfect ease, and no return of the paroxysm for two or three months. Where the neuralgia is of long standing, and pain is persistent, hypodermic injections seem only to be an addition, yet a valuable one, to other palliative remedies. If the patient be in the habit of using opiates, the injection is preferable, from its quicker action and smaller dose, though there is often a difficulty in getting old habits changed to new ones, even when after a few trials the advantages of the injection have been admitted. However, in some cases the substitution is effected, and he quotes another case of long-standing dorso-intercostal neuralgia, in which the patient was taking daily a teaspoonful of solution of muriate of morphia, which produced much dyspepsia. Here the subcutaneous injection of one-third of a grain of morphia produced the same relief of pain, whilst it was preferred to one-sixtieth of a grain of sulphate of atropine. After a trial of different localities, she has for the last

five years preferred having the puncture in the calf of the leg in the morning before rising, and after a cup of coffee, which prevents the occurrence of nausea. No benefit was obtained by increasing the dose. In trigeminal neuralgia, when the periodicity of the pain is well marked, Dr. Holden is able fully to confirm the great value of quinine when given in doses of from three to six grains. He prefers administering it in a glass of sherry about an hour before the time when the pain is due. (*British Medical Journal*, June 17, 1871.)

Extracts from British and Foreign Journals.

Treatment of Scarlet Fever and Diphtheria by Ice and Cold Water.—Dr. H. Corson, of Norristown, Pennsylvania, in some observations on this point, remarks that the application of ice is really, if properly applied, neither a painful nor a disagreeable remedy, but a pleasant one. No doubt if a piece of naked ice were to be suddenly applied to a child's neck and held there, it would almost go into fits for the first few minutes, and the application would be a cruel one; but if the same piece of ice be taken, and two thicknesses of muslin placed between it and the skin, though on the moment of application it would feel to the child to be very cold, in half an hour it could have another of the same kind applied without an unpleasant sensation, and would lie comfortably for days under the application. Whenever called to a case of scarlet fever, if the case is even quite mild, the glands but slightly swelled, and the throat but little inflamed, Dr. Corson has the ice in moderate quantity tied up in two small pieces of bladder, and one applied on each side of the neck, over the parotid gland, by a strip of muslin brought under the jaw and tied on the top of the head, and not around the neck. For the first application this is wetted with cold water alone and tied on. This will seem quite cold to a young child, but in almost a minute it feels cold no longer, so that in a few minutes it may be taken off, wetted, and re-applied. The fragments of ice may now be placed in the bladder and applied in the same way, replacing them when they are melted. Cold drinks or ice may be given internally, and the patient is now safe in mild cases from extension of the disease in the throat to the Eustachian tube, posterior nares, &c. If, when the case is first seen, the skin is red and hot, with eruption, the tonsils, throat, and glands already considerably affected, so that the nose is almost blocked up, but the brain still clear, he applies the ice in large quantities, and gives it freely internally, and applies it over the nose; he gives a laxative, uses some chlorate of potash or tincture of the sesquichloride of iron, and sponges the body freely with cold or cool water. If these directions have been faithfully carried out, he expects that on the morrow he will find his patient no worse. The sore throat will be held

in check ; the heat of the surface of the body will be so moderate that it will be pleasant to the child ; and when the disease shall have run its course, the desquamation will be very moderate, instead of coming off in flakes, as it does in cases that have been kept warm. In those cases in which the throat and skin are comparatively unaffected, and the stress of the disease is upon the brain, the head being hot and flushed, the patient almost comatose, with the face pale, weak and sighing and dull of intellect, he warms the feet and body, and letting the skin and throat alone, he pours cold water from the height of a few feet on the head, until the lost or torpid innervation is restored to the system, just as he would restore a patient sinking into coma and death from opium or other narcotic poison. Dr. Corson states that he has had great success with this plan for twenty years past. (*Med. and Surg. Reporter*, No. 730, 1871.)

Pathology and Therapeutics of Measles.—Dr. Karg gives the following condensed summary of the conclusions at which he has arrived from an investigation of an epidemic of measles occurring in the Royal Orphan Asylum at Vienna in 1869:—1. The poison of measles is an organized substance, which is capable of propagation when received into another organism. 2. The spontaneous development of measles cannot, however, be altogether denied. 3. Tears, blood excretions from the respiratory organs, fluids evaporating from the skin and lungs, are, so far as at present known, direct carriers of the contagion. 4. Measles never occurs without concomitant affection of the respiratory passages, and of the conjunctiva of the eye. 5. Hence also the complications and sequelæ of this disease are chiefly to be looked for in these organs. 6. The pneumonia that is concurrent with measles is usually lobular, and exercises a more powerful influence than any other complication upon the course of the disease. 7. The danger of measles does not result from the exanthema itself, but from the concurrent and consecutive complications. 8. Exceptional cases arise in which measles occurs twice in the same individual. 9. The whole human race are liable to measles, without distinction as to age, except that the very extremes of infancy and old age appear to escape. 10. If, as a general rule, youthful organisms are most disposed to suffer from measles, this is not to be admitted unreservedly under all circumstances, and for every period in each epidemic. In other words, there are children who escape an attack in one epidemic, though they may have been fully exposed to its influence, whilst they fall victims to it in another epidemic. 11. A short interval with a person suffering from measles is rarely sufficient to induce an attack of the disease ; in general some length of exposure is requisite. 12. Summer is less favour-

able to the spread of measles in the form of an epidemic than other seasons of the year. 13. The more rapidly epidemics of measles succeed to one another, the milder is the type of the affection. 14. The treatment of measles consists simply in avoiding injurious influences, and no special medicines, unless complications are present, need be given. 15. Retarded convalescence is due to the existence of complications. (*Der praktische Arzt*, No. 2, 1871.)

Inefficacy of Flowers of Sulphur in Diphtheritis.—The use of flowers of sulphur was some time ago strongly recommended by MM. Ullersperger and Lutz as an important therapeutic means for arresting the progress of diphtheritis, its action being exerted in killing the fungoid growth supposed to be present in this disease. In a recent paper, however, by Professor Hanner, of Munich, these statements are opposed, on the ground of having used the remedy largely in the children's hospital in that town, without in any case having observed good effects result. As the conclusions given by Ullersperger and Lutz may tempt some practitioners to waste valuable time in trying this remedy, we subjoin M. Hanner's remarks. It appears that there are two kinds of flowers of sulphur in the market; one known as raw, and the other as washed flowers. The former contains traces of sulphurous acid, which can be removed by washing with water, and which on exposure to air becomes gradually converted into sulphuric acid. The question naturally arises whether it is the sulphur or the acid present which acts upon the vegetable organisms developed in diphtheria. Sulphur as such is insoluble and unabsorbable into the animal economy, and can, he thinks, have consequently no more effect than if so much glass or quartz powder were blown into the throat; but he made a series of investigations to determine whether the sulphur cleaving to the mouth could be acted upon by the alkali of the saliva and be converted into sulphuret of potassium or sodium, &c., but in all instances he obtained only negative results. He considers, therefore, that pure sulphur is a wholly inoperative remedy in the treatment of diphtheria. He then proceeded to inquire whether the small amount of acid present might not have some action on diphtheria by killing the vegetable organisms, and he took as his standard the movements of the micrococcus when mingled with the sulphur, observing whether they were unaltered or diminished, or altogether arrested. He found that small quantities of raw flowers of sulphur, though two or three times more than the quantity which adheres to the mouth when blown in, moistened with water, and brought into contact with swarming micrococcus, did not kill it. After twenty-four hours, and even after fourteen days, it was still

alive. Very large quantities of the flowers appeared to arrest the motion of some of the spores, though others were unaffected. Diphtheritic membranes were covered with sulphur, the watery portions allowed to evaporate, and after complete desiccation moistened again in three hours with distilled water. The particles were still found to possess their usual activity. From the results of these and other experiments, M. Hanner draws the conclusion that flowers of sulphur, in such quantity at least as they can be applied to the mouth and throat, have little or no action on the vegetable organisms existing in diphtheritis, any slight action they may happen to possess being due to the presence of traces of sulphurous and sulphuric acid. (*Wiener Medizinische Zeitung*, No. 19, 1871.)

Sesquichloride of Iron and Glycerine in Diphtheria and Croupous Affections.—Professor Clar, having experienced the advantage from the application of the best anhydrous glycerine (of Sarg) in various catarrhal and slight croupous and diphtheritic affections, met with some of a much more severe type, which led him to add the sesquichloride of iron to the glycerine with excellent results. The method of treatment he adopts, varying of course with individual peculiarities, is the following. He first prescribes a gentle aperient, either in the form of a manna draught or of a few grains of calomel, which last he holds to be a powerful antiphlogistic remedy, and, when properly used, of great value. Coincidentally he directs cold compresses or cloths to the neck and head, or even to the chest, carefully renovated in accordance with the elevation or depression of the temperature, cold or iced water being at the same time given as drink; and then commences at once the use of iron-glycerine, which consists of two ounces of anhydrous glycerine, and twenty drops of the liquor ferri sesquichloridi. Of this mixture half a teaspoonful is to be given every half-hour throughout the day and night. As soon as the symptoms appear to be mitigated the quantity is diminished to a teaspoonful every second hour; and in the intermediate period, with the object of dissolving the exsudate, a mixture composed of glycerine two ounces, borax twenty grains, is similarly given by a teaspoonful at a time. The iron-glycerine is progressively given at longer periods, and is gradually replaced by the borax-glycerine. (*Ibid.*)

On the Use of Atropia in Eclampsia.—Dr. Milesi having obtained three years ago a successful result in a case of eclampsia by the use of atropia, he employed the remedy in another case more recently, and with the same success. He gives the details, by which it appears that the patient was attacked a few hours after her confinement with convulsions, which were repeated at

intervals of about an hour between them, and she had also severe headache. Dr. Milesi bled her, and took away a pound of blood, after which she said that her head was better; but the pain soon returned, and leeches were applied to the head. The convulsions, however, continued as frequently and as violently as before, and coma supervened. Dr. Milesi, finding that the antiphlogistic treatment was of no avail, prescribed an injection of atropia dissolved in water by means of alcohol, the proportions being 3 centigrammes of atropia in 280 granimes of water ($\frac{1}{2}$ grain nearly to 8 oz.), to be divided into four injections. The convulsions and coma still continued, but the convulsions occurred at longer intervals and were of shorter duration, and eventually the patient quite recovered, although it should be mentioned that Dr. Milesi again bled her to the extent of a pound of blood. This is the same patient who had been treated by atropia for the same disease by Dr. Milesi on a previous occasion. Dr. Milesi, in summing up the particulars of the treatment and its results, doubts the utility of blood-letting in puerperal convulsions, and considers atropia as a powerful and efficacious remedy in relieving the paroxysms. (*L'Imparziale, Firenze, 1870, and Med.-Chir. Rev.* April 1871.)

Therapeutic Value of the Double Salts of Mercury.—In a paper read before the Medico-Physical Society of Florence by Prof. Ranieri Bellini, he refers, in the first place, to the advantages that the double salts of mercury have over corrosive sublimate in the cure of syphilis, owing to the circumstance that they are rapidly absorbed; that they do not cause sloughing of the tissues; that they do not possess a cumulative action, being eliminated from the system with rapidity; that the therapeutic action of the drug is reduced and under control; that they do not give rise to stomatitis, or to the mercurial cachexia, since their action is transient; and, finally, that they subdue the symptoms of syphilis in much smaller doses than corrosive sublimate. He attributes these powers and peculiarities to these salts on account of their not forming insoluble salts with the tissues, and on account of their not being precipitated in the form of insoluble carbonate by the alkaline carbonates of the economy. Appealing to experiment, he shows that in order to preserve the above-mentioned advantages, the salts should not be injected in an acid solution, but rather in a neutral or alkaline. He shows how the double salts of mercury exert an irritant action on the tissues where they enter and leave the organism, and how as they circulate with the blood they retard the movements of the heart and lower the temperature of the body. The irritant action just referred to is, however, very slight, and is not exhibited by all the double salts in an equal degree—

least of all by the double salt of chloride of mercury and chloride of sodium. He points out that the double chloride of mercury and ammonium, and that of the alkaline hyposulphites, undergo decomposition in the blood. After some further observations, he states the following conclusions:—1. That the double salts of mercury ought to be taken during fasting, or be injected hypodermically. 2. That when they are taken on an empty stomach the patient should be recommended not to take acid drinks or fruits or conserves of any kind. 3. That the double chloride of mercury and ammonium can be administered with the greatest advantage, since this salt is decomposed in the blood. 4. That when the double hyposulphite of an alkali and of mercury is administered, it is requisite, in order that it should retain its properties during its passage through the system, to prescribe small doses of the alkaline hyposulphite. 5. That when the double salt cannot be administered otherwise than upon a full stomach, small quantities of the alkaline salts should be administered in addition, to obviate decomposition. 6. That the double salts of mercury irritate the tissues with which they come into direct contact, either in entering or escaping from the body. 7. That ultimately, as they circulate through the body, they depress the movements of the heart and the animal temperature. 8. That they do not tend to accumulate in the body, and that their therapeutic effects are paralysed. 9. That, finally, they neither occasion stomatitis nor mercurial cachexia. (*L'Imparziale*, No. 10, 1871.)

The Corrective Influence of Bromide of Potassium on Opium.—Dr. Da Costa, of Pennsylvania, calls attention again to the influence bromide of potassium exerts on the unpleasant effects produced by opium. It does not destroy either the anodyne or the hypnotic effect of the opiate; on the contrary, it rather heightens both, and more particularly the latter. To quote from the letter of one of his patients: “The more bromide I take, the sooner do I get to sleep after a dose of opium. Two doses of bromide (twenty grains each) are not usually enough to counteract the exciting effects and procure sleep under five or six hours from the time of taking.” The faintness from opium is the phenomenon most markedly prevented, and next in the readiness with which they are prevented from occurring stand the headache, vertigo, and nausea, then the itching of the surface and dry mouth. The bromide has seemed to Dr. Da Costa to act best when it is given some hours before the opium, and forty to sixty grains—generally forty grains—prove sufficient. But it also has an action sometimes, however, markedly less, when combined with opium; and should unpleasant consequences have accrued from this, the bromide will

mitigate their severity. Even the cutaneous itching is favourably influenced, and he has known repeated doses most decidedly affect the faintness. When morphia is used hypodermically, it is then most necessary to give the bromide some time in advance, and it may take larger doses to accomplish the purpose. The corrective influence of the bromide occasionally fails to be exerted. In one case the patient was suffering from advanced phthisis, and sleeplessness, a feeling of confusion, dizziness, and dull throbbing frontal headache and nausea, and vomiting in the morning, were caused by one drachm of the solution of sulphate of morphia. The addition of the same amount of spirits of chloroform obviated for a time the unpleasant results, though it finally failed, and sixty grains of the bromide did not prevent one-fourth of a grain of morphia from producing the disagreeable consequences. Such exceptions, however, Dr. Da Costa believes, will not be found to be numerous. (*American Journal of Medical Science*, April 1871.)

Iodide of Potassium in the Second Stage of Morbus Brightii.—Professor Créqui, of Brussels, states that he has employed iodide of potassium with great success in the second stage or parenchymatous inflammation of the kidney (*Nephritis parenchymatosa*), having cured several cases perfectly. He attributes the unfavourable results obtained by other and former experiments with this agent to the circumstance of their using too small doses. Créqui begins with from 2 to 3 grammes (30 to 45 grains) per diem, and increases the dose gradually 15 grains per diem till the total quantity given amounts to from 100 to 225 grains, or even more if any benefit appears to be obtained. To the larger doses he adds a small quantity of opium or nitrate of bismuth, in order to obtain tolerance. Dr. Bandon and Professor J. Semmala, of Naples, have obtained similar good results in high degrees of albuminuria from the administration of large doses of iodide of potassium. Dr. Caspari, of Meiningen, proceeding upon these statements, employed the iodide in five cases, and obtained good results in three. The urine of the patients in whom it was successful became free from albumen, the dropsical condition disappeared, and the strength of the patients increased. In the remaining two the remedy proved of no value; the patients died. The action of the iodide in these cases may be explained from a consideration of its capacity of diminishing the exalted productivity of the connective tissue, which is exhibited in *nephritis parenchymatosa* by the proliferation of fusiform cells around the Malpighian bodies. (*Der praktische Arzt*, Feb. 1871.)

The Physiological Action of Conia.—The following observations of M. Verigo on Conia appear in the *Cen-*

tralblatt (No. 2, 1871), translated from the Russian *Archiv für gerichtliche Medizin*. The experiments were made upon man, frogs, rabbits, and dogs. 1. Conia acts most strongly upon the spinal cord, affecting especially the motor nerve-fibres. 2. This action is established in frogs by the phenomena of paralysis, without any trace of convulsion whatever. In mammals, on the other hand, the most violent convulsions occur after large (lethal) doses of the poison, whilst after small or non-lethal doses paralysis in the extremities only occurs. 3. The phenomena of paralysis proceed from the spinal cord to the peripheric system of the motor nerves, which therefore first becomes affected after the cord itself. 4. The brain appears to be but little affected by conia. 5. Administered in small doses conia retards respiration, and in large doses may altogether paralyse the respiratory acts, which depend, not, as Kölliker supposed, upon an affection of the peripheric nerves, but upon paralysis of the spinal cord. 7. The convulsions produced in mammals by conia form a tolerably certain indication of the fatal issue of the case in which it has been administered. They constitute a symptom of the poisonous action of the drug, and do not depend upon paralysis of the respiration. 8. The blood does not appear to undergo any alteration, the corpuscles at any rate retaining their capability of absorbing oxygen. 9. Conia exhibits no action upon the heart or upon the pulse. 10. It depresses the temperature of the body, and to a greater extent the more distinctly the paretic symptoms are produced. Its action on the pupil is not constant. 11. The action of conia is most strongly and most rapidly expressed when it is injected directly into the veins; more feebly when it is ingested into the stomach or subcutaneously injected; in the two latter cases the action is identical. 12. Conia has no influence on the quality or upon the quantity of the urine. 13. When applied externally it only produces slight itching and redness. 14. Post-mortem examination shows no appearances characteristic of poisoning with the drug. (*Deutsche Zeitschrift für die Staatsarzneikunde*, xxviii. pp. 23—250; and *Centralblatt*, No. 2, 1871.)

Therapeutic Value of Conium in Epilepsy.—Drs. Gonzales Echeverria and A. E. Macdonald remark, that although conium is not altogether a new remedy for epilepsy, it has not been praised so much as other anti-epileptics, probably on account of the doubtful or insufficient strength of the extracts, or tinctures of hemlock as hitherto prepared according to the different Pharmacopœias. In their experiments they have endeavoured to ascertain the true medicinal application of so valuable a remedy in nervous diseases generally, cautiously inquiring as well into its beneficial as its injurious effects, and in several

of the cases they record they have closely watched the patient daily for a year or more. The conviction has gradually forced itself upon their minds that conium possesses a great power to remove the irritability and depression which are common to epileptics, and that while acting as a tonic, it is furthermore the safest narcotic that can under the circumstances be employed, and free from the ordinary evils of morphia, belladonna, &c. They have found the strongest effects to be produced by the English juice of hemlock prepared from the green fruit, or the fluid extract prepared from the fresh unripe fruit by Dr. Squibb, of Brooklyn. They have also endeavoured to study the action of conium, but have been unable to procure reliable preparations of it. The ultimate effect of conia, as shown by Dr. John Harley, is to produce sleep. To induce such effect in epilepsy, conium must be administered in frequently repeated doses. Ordinarily, no quantity short of half an ounce of the English juice, or from half to one drachm of Squibb's fluid extract of the fresh unripe fruit of hemlock, will influence the nervous centres in any decided narcotic manner. The darker the juice the more powerfully will it act. The utmost effect of hemlock becomes conspicuous in from twenty to thirty minutes after two or three ounces of the juice, or one or two drachms of Squibb's fluid extract, have been taken. The operation of conia lasts from two to six hours and then disappears, leaving no other traces than a sense of diminished muscular energy, in a few instances accompanied by nausea or hiccough, and more frequently by a burning sensation on urinating, both of which phenomena are of short duration. The weaker and more inactive the epileptic is, the larger will be the quantity of conium required to affect him as a narcotic. And it is striking, as further asserted by Harley, that conium really operates as a tonic upon the muscular system. The authors of the paper have found the pulse regular throughout the operation of conium, but not of undiminished force and volume, as stated by Harley. They consider that the drug exerts a paralysing influence upon the heart, the internal sensibility of the organ being affected through the depressor nerve or sensitive cardiac branch of Cyon, which accounts for the bloodless condition of the limbs from contraction of the peripheral blood-vessels. Conium therefore differs from bromide of potassium, which operates in a paralysing manner, mainly on the vasomotor nerves. They are satisfied that the sympathetic system is primarily involved in the production of epilepsy occasioning derangement of the circulation. Hence the value of such remedies as conium and bromide of potassium, which operate chiefly on the motor nervous tracts and the enervation of the whole nervous system. The cases recorded are interesting. (*Philadelphia Medical Times*, April 15, 1871.)

An effectual Method of compressing the Uterus, so as to promptly arrest dangerous Post-partum Hæmorrhage. — Dr. J. C. Hubbard, of Ashtabula, Ohio, quotes Dr. R. Barnes' observations showing the failure or imperfect action of ergot, cold applications, kneading the uterus, compression of the abdominal aorta, plugging, faradisation, and removal of clots, in promptly arresting uterine hæmorrhage, and proceeds to give the following directions, which he believes will enable the practitioner, or some person under his direction, to so compress the uterus with one hand, by exerting a power equal perhaps to from six to twelve pounds' weight, that dangerous flooding will be promptly arrested. Let the patient be turned partially upon either side, say at an angle of twenty-five degrees from the supine position, and be securely propped. The practitioner can now sweep the uterus into the dependent iliac fossa. By spreading his fingers a little, he can cover and half grasp it. This position affords the posterior surface of the uterus a well-cushioned bony depression. Once fairly placed, it will not slip away from the hand. The external and superior borders of the organ receive counter-pressure, the former from the transversalis, internal abdominal, and the quadratus lumborum muscles; the latter, *i.e.* the fundus uteri, is pressed also in part against the quadratus lumborum muscle, the bodies of the fourth and fifth lumbar vertebræ, their lateral processes, and the lumbo-iliac and lumbo-sacral ligaments. The hand of the operator of course completes the uniform pressure as it is applied to the anterior surface of the womb, and is made to partly overlap its internal border. If the uterus cannot be readily crowded into the proper position, because it slides into the pelvic cavity, it can be carried up and placed by the aid of two fingers inserted into the vagina. If a considerable portion of the uterus juts below the linea ilio-pectinea, thus escaping pressure, it can be supplied by the fingers in the vagina. The force should be applied so as to thrust the jutting part directly forward against the abdominal wall. Pressure enforced in this systematic manner does immediately and permanently arrest dangerous hæmorrhage, whilst it is less painful than other methods, and does not prevent a free return of the venous circulation of the pelvic organs. From repeated observation, Dr. Hubbard is able to say that this method of compression will generally excite lasting contraction in an hour at least after the expulsion of the placenta, and the large clots are turned out if it is applied before the contractibility of the womb is wasted by excessive loss of blood. Some difficulty, he states, is often experienced in properly placing the uterus in obese patients. (*Hay's American Journal*, April 1871.)

Notes and Queries.

DEPARTMENT OF ANALYSIS AND INVENTIONS.

AGNEW'S COD LIVER OIL JELLY.—We must ask the attention of our readers to a brief statement of some rather important facts respecting the circumstances of our first analysis of this drug, and also of the further analyses which we publish below.

Our analyst, after making the first examinations, privately communicated their general result to Dr. Attfield, who had certified that a sample of the jelly analysed by him contained 75 per cent. of oil, Mr. Agnew at the same time certifying that all samples supplied to the agents should contain the same proportion of oil. Dr. Attfield having completely verified our analyst's statement as to the serious deficiency in oil exhibited by various samples actually sold by several respectable London agents of the maker, immediately communicated the fact to Mr. Agnew, and remonstrated with him. The latter gentleman, without waiting for the appearance of our condemnatory report, put forward the following somewhat misleading statement in the weekly medical journals (dated May 19, 1871):—"Dr. Attfield has drawn my attention to a deficiency in the percentage of oil in recent parcels of my 'cod-liver oil jelly:' in justice to the Professor, I beg to say that the deficiency has arisen through a miscalculation on my part, and that the error has been corrected."

It will be observed (1) that there is no mention of the fact that the error was originally discovered by an outsider (ourselves); (2) that the mistake is spoken of only as occurring in "recent parcels," whereas our analyst had detected the same deficiency in parcels of various dates, and also in the small samples of the jelly which were originally sent round to members of the profession; (3) that Mr. Agnew had himself published a formula (sent round with the small specimen samples), according to which the proportion of oil that should have been present was 83 volumes per cent., thus making the deficiency detected by us still more serious. We are thus reduced to the following awkward dilemma: either Mr. Agnew supplied a sample of the jelly to Dr. Attfield, for analysis, which did not at all represent the jelly actually in the market, or the latter gentleman made a

mistake in his original analysis of from 15 to 20 per-cent. Be that as it may, it is quite evident from the above detailed facts that such general certificates as those which were published by the maker of the jelly are absolutely valueless as a protection to the public, and that analytical chemists would do well altogether to refuse to give such testimonials.

In consequence of the above declaration of the maker we have thought it our duty to analyse samples of cod-liver oil furnished to the London agents, from the factory, several weeks after the date of that document. We regret to say that we still find a deficiency of 15 to 16 per cent., as the analytical details given below will sufficiently show. We leave the profession, the manufacturers of drugs, and the analytical chemists of this country to their own reflections and conclusions on the matter. We make no comment whatever on the motives of any persons concerned; but we must distinctly point out, that but for the interference of the *Practitioner* a very serious and misleading manufacturing error might have been continued for an indefinite period.

No. I. bought at Barclay and Son's, Farringdon Street. Colour, pale straw yellow.

No. II. bought at Millard and Son's, 44, Barbican. Colour, straw yellow.

Number.	COD LIVER OIL.		SUGAR. Per cent. by weight.	Specific gravity.
	Per cent. by volume in volume.	Per cent. by weight in weight.		
I.	58.73	50.29	31.22	1081.4
II.	61.84	52.93	29.69	1080.8

The jelly, if made according to declaration, should just about float in water; whereas the above readily sinks down in it, and floats only in a syrup containing $\bar{3}j$ of sugar to $\bar{3}iv$ of water.

CORRESPONDENCE.

THE whole of our correspondence is unavoidably postponed from pressure of space. Correspondents will please take notice that letters should reach us by the 12th of the month previous to that in which they are to be published.

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¹ Any of the foreign works may be procured by application to Williams and Norgate, of Henrietta Street, Covent Garden, W.C.; or to Messrs. Dulau, of Soho Square, W.C.

THE PRACTITIONER.

AUGUST, 1871.

Original Communications.

ON THE PRINCIPLES OF THERAPEUTICS.

BY JAMES ROSS, M.D.

Newchurch, near Manchester.

IN a former communication upon this subject, the healthy body was regarded as in a more or less stable equilibrium, and I pointed out that it was the duty of the physician to introduce into the environment all the forces which tended to maintain that equilibrium, and to avoid or remove all the forces which tended to overthrow it. But the body does not maintain the same equilibrium for two successive instants of time; the balance of its functions is being constantly overthrown, and is being as constantly renewed; hence the equilibrium maintained is a moving one. The organism is living so long as its forces are so adjusted as to balance the forces of the environment—so long, in short, as any kind of moving equilibrium is maintained; but in order that this equilibrium be a healthy one, its motion must take place in a particular direction, and any perturbation from that direction constitutes disease. The first problem which presents itself, therefore, is to find the direction of the moving equilibrium which constitutes healthy life.

The healthy life of an individual is an orderly progression in the direction of size, of structure, and of function. Each indi-

vidual, during the first stage of life, increases in bulk, acquires a more complex structure, with increase of functional activity. During middle life each of these processes continues more or less stationary, although, when the body ceases to increase in size, more of the food taken for its maintenance can be expended in functional activity; and after middle age is passed the functional activity declines manifestly; the structure gets more and more like the chemical and inorganic substances of which the body is composed; and if the bulk of the body does not always diminish, there is a gradual decrease of its more active tissues, such as the nervous and muscular. Hence, looking at the body as a whole, the path of its healthy life may be compared to that described by a projectile or to a parabola. The body takes its origin in pre-existing life, increases in the directions indicated, and finally its motions become feebler, until the equilibrium is overthrown in death. But when I say that the course of a healthy body may be represented by a parabola, it must be understood with not only an equal, but even a greater latitude than is given to the astronomer when he says that a planet describes an ellipse in its course round the sun. The real path of the planet is an oscillatory movement, of which the circumference of the ellipse represents the mean position. Similarly in the case of the living body, neither its weight nor its vigour are stationary for a single instant, but are constantly oscillating from side to side of an average position, which may be pretty accurately represented by a parabola.

But this mode of viewing both health and disease is too general to be of much use in directing our practice. The orderly progression of the life of an individual, which we term health, and which it is the duty of the physician to promote, must depend in the ultimate analysis upon the harmonious action of the units of which the body is composed; just as the order and progress of a society, which it is the duty of a good government to promote, must depend upon the moral and intellectual qualities of its individual citizens. But, as in the case of states a government must direct its attention, not to the care of each individual, but to the control and guidance of aggregates of individuals, termed classes of society, so the physician must attend to the aggregates of units termed parts or organs. Now each

part of the body has a life of its own, and it is upon the orderly progress of the life of each organ that the harmonious action of the whole depends. It has already been said that the life of the body as a whole might be compared to a parabola, and, with the qualifications then noticed, the same is true of the life of each organ. And not only must the course of the healthy life of each organ be a parabola, but the course of each must bear a certain definite proportion to that of every other, and to the course of the life of the individual as a whole; just as the orbit of each planet bears a constant relation to that of every other, and to the solar system as a whole.

Having now indicated the general direction of a healthy life, both as regards the whole body and its parts, we must turn our attention to the perturbation which constitutes disease. Dr. Gull, in his Presidential Address to the Clinical Society, remarked:—"If the momentum and direction of a moving body be known, its course and the results of impediments upon it can be calculated. So, if we would obtain any true experience of therapeutical measures, we must of necessity acquaint ourselves with the exact strength and tendency of the forces against which we operate." The idea of Dr. Gull is, in my opinion, at present unattainable; but if it be possible by observation and reasoning to ascertain the general direction of the course of a disease, and the main forces which concur to move it in that direction, even if it be not possible to calculate the exact strength of these forces, a considerable advance will have been made towards attaining to that ideal. So much can, I think, be done for some diseases, and therefore considerable precision can be given to the treatment of such.

In every moving equilibrium, when a disturbing force produces an excess of change in one direction, it happens, unless the motion is entirely overthrown or permanently changed in its direction, that antagonistic forces are called into action which work a compensating change in the opposite direction; and after more or less of oscillation the medium condition is restored. This law might be illustrated by reference to all moving equilibria, from the spinning of a top to the revolution of a planet; but it is unnecessary to refer to any other form of moving equilibrium, as it can be amply illustrated by the perturbations which

constitute disease. The course of the healthy life of an individual has already been regarded from the points of view of the life of an individual as a whole, and the life of the different parts or organs of the individual; and the perturbations of disease may be regarded from similar points of view. And, indeed, the medical man ought to regard every case of disease from these two standpoints, since there is no disease, however local it may be, but affects the individual as a whole; and every case of what are called general diseases requires special care and treatment of certain localities more than of others.

But to return to the law of equilibration already laid down, the oscillations of fever, such as the cold, hot, and sweating stages of ague, may be quoted as examples. But, leaving the general applications of the law, I shall pass on to illustrate it by reference to local diseases.

When excess of muscular or nervous activity produces a great expenditure of force, there follows a prolonged rest, during which the force expended is restored. The slight disturbance of local nutrition termed *irritation*, is an excess of the normal nutrition of the part, and it also is, in all probability, followed by a period when the nutrition is below the normal standard. When cold is applied to a part of the body, its nutrition may for a short time be almost entirely suspended; but if the vitality of the part be restored too quickly, an oscillation takes place to the opposite side, constituting inflammation. I have, in another place, endeavoured to prove that the first stage of inflammation is an excess of the normal nutrition of the part; that this excess produces changes in the relations between the tissues of the locality affected and the blood and capillaries, which causes an oscillation in the way of defect of nutrition to take place. The secondary oscillation may be so great as almost instantly to overthrow the equilibrium in death, or it may only be to an extent which is compatible with the gradual return of the locality to the line of health. Between these two terminations—technically called gangrene and resolution—there may be various terminations, from the gradual death which constitutes ulceration to the formation of a new moving equilibrium nearer to death than the line of health, as the formation of degenerate tissues like pus and chronic exudations. But there are other instances

of disease in which the perturbation produced consists of a more or less permanent change in the direction of the motion of the equilibrium which constitutes health. If the entire body were to change in the direction of increase of nutritive activity, we would not, I imagine, call this a state of disease, although even the condition in which the individual describes himself as "never having felt better in his life," is one which is not entirely free from peril. But a much more common case is where the perturbation of the organism is one of defective nutrition; but even in cases of what are called general debility, some localities of the body are found to be weaker and requiring more care than the rest. With regard to local disease, hypertrophy is an example of excess; whilst atrophy, various degenerations, and probably tubercle, are examples of defective nutrition. There are cases of disease, such as cancer, and various tumours, of which it is impossible to say what course they pursue in reference to the line of health, therefore their local treatment must be more or less empirical, although the general treatment of the patient is reducible to principles.

Having stated theories of health and of disease, it is now incumbent upon us to form a general theory of the action of the agents employed by us in influencing disease. Setting aside the theory of the action of food and of climate, which come more particularly within the scope of medical statics, I wish to notice at present the local action of the physical forces, and the action of drugs. But to form such a theory is not properly the function of the therapist. The theory of organic media is, or ought to be, a branch of physiology, but at present it is in too close alliance with the art of medicine, since the theorems of the science are greatly influenced by the practice of the art, instead of the art finding its justification in the theorems of the science. That a certain degree of warmth promotes growth, and that cold is the direct sedative of every vital manifestation, are conclusions of the highest practical value to the gardener and the agriculturist, as well as to the physician; hence these conclusions are recognized as being co-extensive with the whole field of biology. But the investigation of the action of arsenic and other drugs upon life is handed over to the practitioner in medicine, who is too apt to take cognizance of that action only in so far as it is beneficial in

the treatment of disease, instead of forming a comprehensive theory of all the effects both in health and disease, without reference to such a classification as beneficial and prejudicial. Binz's theory of the action of quinine upon the body is an instance of the baneful influence upon which I am commenting. Who would call the action of quinine "antipyretic," if not that it is very useful in the treatment of fevers? In this case the theorem is in reality derived from the art instead of the art being fortified by a theorem derived from an independent science. In the absence, however, of this branch of physiology, I must make a few remarks upon the action of drugs. I shall not wait to inquire whether there is any medicine which acts on the body as a whole: there can be no doubt that by far the majority of drugs, after absorption into the circulation, act upon a special tract of tissue; and even those drugs which are called general stimulants, are such because they act principally upon nervous tissue. With regard to the nature of the action produced by drugs upon the tissue for which they have an affinity, some are supposed to be sedative, while others are stimulant. Now the effect of the local application of cold to a part may be taken as the type of the sedative medicines, and that of local warmth as that of the stimulant. But when a part of the body is frozen for a short time, if it be allowed to return to the ordinary temperature too suddenly, an oscillation takes place to the opposite direction, and high action, or even inflammation of the part results. On the other hand, if heat be gradually added to a part, its nutritive activity, or its irritability, which I regard as the sign of nutritive activity, is increased; but if too much heat is added, its irritability will be annihilated, while an intermediate degree will cause inflammation; and it has already been pointed out that the second stage of inflammation is characterized by defective nutrition. The negative pole of a weak current of galvanism increases the irritability of a nerve, while a more powerful current increases it for an instant, and this is immediately followed by depression of the irritability. Certain chemical solutions, when applied locally to a disease, which is characterized by defective nutrition, such as indolent ulcers, have the effect of stimulating the nutrition of the part; but if the solution is more concentrated, a fresh inflammation may

be the result ; and if still more concentrated, immediate destruction of the part will follow.

Let us now consider the action of internal drugs. I do not know of a good example of a directly sedative medicine which can be connected with a defined tract of tissue. It is with considerable diffidence that I bring forward aconite as a medicine which appears to have a depressing effect upon the nerves of the heart ; but, at any rate, it is possible to speak with more confidence of the more obvious effects of aconite, since the chilled skin and slow pulse of the primary stage are succeeded, when the patient recovers, by a secondary stage, in which the skin is hot, and the pulse quick and hard. Our knowledge of the medicines whose primary action is stimulant, is more complete. Medicines, for instance, whose primary action is that of stimulants to the brain, produce narcotism for their secondary action. Strychnia, in small doses, increases the irritability of the excito-motor nerve-cells, or fibres of the spinal chord, while, if the action is prolonged, or the dose increased, the irritability is diminished, and may be entirely destroyed. But in tissues which do not respond to stimuli by a corresponding expenditure of energy, the result of an excess of the stimulus is to produce inflammation, and, as already noticed, the second stage of that process is characterized by defective nutrition. In a former communication to this journal, I have endeavoured to prove that mercury has a stimulant action on the white tissues of the body, and if this action be pushed too far, that inflammation of these tissues may result. Cantharides is a stimulant to the genito-urinary mucous membrane, and an excessive dose may produce inflammation of that membrane. The same may be said of the action of arsenic on certain parts of the skin, and on the mucous membrane of the stomach, and probably on that of the upper portion of the bowels ; of the action of squills on the mucous membrane of the bronchii ; of aloes on the muscular and mucous coats of the rectum ; and, indeed, a large proportion of the medicines employed in the treatment of disease have a stimulant action upon a certain tract of tissue, and when this action is excessive, inflammation of that tissue results. The actions, therefore, of all the agents which have been noticed, whether sedatives or stimulants, are examples of the law of equilibrium already mentioned, in which the primary oscillation is

succeeded by a secondary one in the opposite direction, until, finally, the equilibrium is either overthrown in death, or the medium condition restored. I do not assert that the action of all the agents employed in the cure of disease can be brought within the scope of this law; but the actions of those which lie beyond it must be accounted for by some other theory, or must be employed empirically. I shall, however, confine my remarks at present to those agents, especially those drugs, which come within the scope of the law of equilibration just stated, merely remarking that if there are drugs which must be employed, if employed at all, more or less empirically, this is no reason why others should not be brought under the guidance of general principles. •

We have now laid down a theory of health and of disease, and also of the majority of the agents which are employed in influencing disease. It remains now to draw out a formula, or formulæ, which will bring the theories of disease and of the remedies into such juxtaposition as will enable us to attain to health, or to a condition as nearly approaching to health, as the circumstances of the case will allow. Such formulæ may first be evolved by the consideration of a simple case, and then applied to other cases of disease. Take fatty degeneration of the heart as an instance. In this disease the direction of the moving equilibrium of the organ is permanently changed. Now the typical treatment would be to deflect the course of the diseased organ to the standard health of the individual. That, however, is impossible; and therefore the next best thing to do is to enable the whole body to form a new equilibrium about the diseased organ. These two principles are applicable to the treatment of almost every case of disease. The former directs attention mainly, though not entirely, to the local lesion, and enjoins us to deflect its nutrition to the standard of the health of the individual; the latter directs attention to the organism as a whole, and enjoins us to accommodate its actions to that of the diseased organ. To borrow an illustration from statics, the strength of a chain is measured by that of its weakest link. We may strengthen the weak link to the standard of the whole, or accommodate the strain upon the whole to the strength of the weak link.

I shall now first examine and illustrate, by a few examples, the principle which enjoins us to enable the whole body to form a new equilibrium about the diseased locality. The applicability of this principle to the treatment of such cases as fatty disease of the heart is very conspicuous. The muscular or nervous exertion which would be regarded as very moderate for a healthy individual might entirely overthrow the action of that heart, and death be the result; therefore the action of the individual must be accommodated to the strength of the diseased heart. Likewise our endeavours to ward off or relieve the results of valvular diseases of the heart—as pulmonary congestion, pneumonia, hæmorrhage, congestion of the liver and kidneys, and dropsy, are so many attempts to enable the body to equilibrate, as long as possible, about the diseased organ. But although the applicability of this principle to the treatment of diseased organs, where the perturbation from health is permanent, is very manifest, yet a little further consideration will show that it is equally applicable to the treatment of other cases of disease. In my former communication upon this subject I said that the rest, liquid nourishment, and general environment of a patient suffering from acute disease must be regulated by the principle to avoid everything which would cause a new, or aggravate an existing, disease. But it is possible to bring such general treatment within the scope of the principle under consideration; and by doing so a very great advantage is gained. When disease is regarded as a perturbation of the moving equilibrium of health, if we only keep before our minds the principle “to deflect the disease towards health,” we shall be too apt, when treating a weak organ, such as a lung in the second stage of inflammation, to think only of the weakness, and then to resort to undue local and general stimulation. But if the obverse principle, “to enable the whole body to form a new equilibrium about the diseased organ,” be kept before the mind, it will act as a counteractive to this error. It is very evident that if the actions of the whole individual are accommodated to the inflamed lung, that all active exertion on the part of the patient must be suspended; that he must breathe pure air, and be kept at a uniform temperature. Then this principle will bring before our minds very serious considerations with regard to diet.

It has been found that milk, tea, coffee, bread, and sugar increase the evolution of carbonic acid from $1\frac{1}{2}$ to 3 grains per minute; hence neither of these are suitable articles of diet in the primary stages of pneumonia. It has also been found that the nitrogenous foods increase the evolution of carbonic acid from $\frac{3}{4}$ grain to 1 grain per minute. At first sight it might seem that the nitrogenous foods would be much more suitable as articles of diet in pneumonia than tea, or milk, or bread; but a little further consideration will show that this conclusion is very doubtful. Dr. Parkes, in his recent lectures on the "Elimination of Nitrogen from the Human Body," has shown that in health the amount excreted by the kidney bears a direct proportion to that which enters the body with the food. But in febrile diseases the exit of nitrogen is very much larger than the entrance; "and feeding with nitrogen does not prevent, or only to a slight extent, the diminution of the nitrogenous tissues." If, then, nitrogenous food were administered in the early stages of pneumonia, a greater amount of work would be thrown upon the kidneys, and probably upon the liver, and these organs being congested in this disease are less capable of performing that work; hence there would be an accumulation of nitrogenous elements in the blood, and it is well known that this state of matters may cause convulsions or coma, and that these conditions would react most unfavourably upon the inflamed lung.

But I must now proceed to the consideration of the obverse principle, which enjoins us "to deflect the course of the disease towards health." It may be objected that this precept is merely another mode of asking us "to restore health," a precept which it is very desirable to obey, but one which is perfectly useless in pointing out any means by which our object can be attained. But the principle "to deflect the course of the disease towards health," involves a great deal more than this. In the first place, this mode of expression keeps before the mind the fact that health is a progression, and that the aim of treatment is not to bring the individual back to the vital status he occupied before the disease, but from the past and present to form an ideal of what his vital status would be at some time in the future if the perturbation of the disease had not taken place, and to deflect

this perturbation towards that point. The past is beyond recall, and to bring back the vital status occupied by our patient a few days or a few hours ago is impossible.

“For Nature brings not back the Mastodon,
Nor we those times ; and why should any man
Remodel models ?”

Obvious as these remarks may appear, the neglect of what is implied in them has led to very bad practice in the past. All the spasmodic efforts which were made to check the disease, to strangle it at its birth, to turn it back by opposing forces, had at their formation the idea that the patient could be remodelled upon the exact model of the past.

But if our object in treatment is to deflect the course of the disease to a certain ideal point in the future, this must be done by letting fall upon the part forces which will give a direction to the disease towards that point, and not by forces which oppose the progress of the disease, nor by forces which would merely impel it in the direction it is already pursuing. But the forces which would give the disease this direction must fall upon the diseased part at an acute angle to the course it is pursuing at the time, and therefore the physical metaphor by which we should represent to ourselves the action of our remedies upon disease, is not by opposing nor by similar forces, but by oblique incident forces. Suppose that we have to treat a case of bronchitis, I believe that all schools of medicine would regard squills as a suitable remedy at a certain stage of the disease. When squills is given in large doses to a healthy person it produces bronchitis, and therefore the homœopathist is right in selecting it in the cure of that disease. But the homœopathist, instead of giving squills in the first stage of bronchitis, when the skin is hot and the patient feverish, administers aconite. The primary affect of aconite, however, is to depress the action of the heart and to produce chilliness of the body ; and although the secondary effect may be the reverse of this, yet it is administered in doses which are certain only to produce its primary action ; and that primary action is just the opposite of the constitutional symptoms of the feverish stage of bronchitis. When the feverish symptoms subside squills is administered, but during this stage the mucous membrane is suffering from

defective nutrition, and the primary action of squills is to stimulate the membrane; hence, here again, the action of the remedy is the very opposite of the state of the nutrition of the locality which is the object of treatment. In both these instances the homœopathist is unconsciously an antipathist, and the law of similars, and that of contraries, are not mutual contradictories, as some have supposed, but merely opposites—the opposition arising from the subject being viewed from two different standpoints. It is an additional confirmation of the truth of the principles here advanced, that by their means we are enabled to explain the homœopathic and antipathic laws instead of ignoring them. These laws are, as Dr. Anstie has more than once pointed out, obtained by the method of simple enumeration, and are therefore empirical; but such laws are necessary at a certain stage of the sciences, and I would refuse to believe in any system of medicine which would ignore them, just as I would refuse to believe in any system of astronomy that would ignore instead of explaining the apparent motion of the planets.

The planets appear to have a motion which is sometimes retrograde and sometimes progressive, while at other times they appear stationary; but when the point of view is transferred from the earth to the sun, the real motion is seen to be always progressive. Similarly, when we transfer our minds to the higher point of view afforded us by the principle just considered, the homœopathic and antipathic laws are perfectly reconcileable. But the principles here stated embrace and give a wider meaning to another principle which has been very useful as a guide to practice. Cullen strongly insisted upon the principle “to obviate the tendency to death;” but this principle is embraced by one or other of those already mentioned, according as the case is viewed from the point of view of disease of the individual as a whole, or of a certain locality, or from the statical or dynamical point of view. But the mode of expressing the precept “to obviate the tendency to death,” has certain advantages over the modes of expression adopted here, for, like all particular precepts, it is more directly useful as a guide to the mind in certain emergencies. For instance, a leg is crushed, and the man is suffering from severe shock to the

nervous system. Now the precept "to obviate the tendency to death" directs attention at once to the fact that that organ must have precedence in treatment, which is of the greatest importance to the life of the individual as a whole; while it requires a little consideration before it can be seen that such a case is at all embraced by the principle "to deflect the course of the disease to health." But the latter mode of expression has the advantage of being much more general, and consequently of being applicable to cases which is not included by the other at all. Having now shown that this principle gives a higher standpoint from which empirical and subordinate ones may be explained, I must leave its application to particular cases to the reader.

The great advantage of the principles just stated, is not, that by their means we are enabled to select a particular remedy for a particular disease; but that they assist us in sketching out a complete *system* of treatment for each disease. With only few exceptions, the nutrition of a part of the body depends upon a right condition of four factors; viz. parenchyma, blood, blood-vessels, and nerves; while each part is correlated to the whole, and has special correlations with certain other parts of the body. Hence, there are various means, both local and general, direct and indirect, by which a diseased nutrition of a part may be influenced, while the combination of means by which such influence can be produced are almost endless; and the great thing we must look to is that the means adopted by us for the cure of disease are all concurring to the same end. What would be thought of one who would employ Dr. Chapman's method of applying heat to the spine to constrict the arterioles of the lungs, and at the same time give antimony to relax them? Yet the old method of bleeding and blistering at the same time was just such a plan of treatment. A man was bled in order to depress the action of the inflamed organ, and at the same time a blister was applied which tends to stimulate the organs to increased action. No empirical law, such as homœopathy or antipathy, could ever assure us that all our measures of food, rest, drugs, and local applications are acting in concert. Neither can the rank empiricism, which pretends to cast overboard all theory and all principles, ever

give us this assurance; and the only means by which we can attain to it is by a theory of health on the one hand, and on the other theories of disease and of the agents by which disease may be influenced, along with a statement of enlarged principles which will bring the latter theories into such juxtaposition as will assist us in attaining to health. It is needless to add, that the whole of our theoretical argumentation must be verified by close clinical observation.

In conclusion, I would point out a fallacy which underlies the argumentation of all the opponents of rational medicine. The differences of opinion which exist amongst us with regard to the treatment of particular cases of disease are seized upon. The opinion of one man is pitted against that of another, and from these divergences of opinion it is argued that no principles exist. But this merely proves that there are differences of opinion in the application of principles, not that the principles themselves are non-existent. What would be thought of a writer who would rake up all the divergences of opinion in our scientific journals with regard to the truth or falsity of certain scientific propositions and conclusions, and argue from these that there are no principles of logic, and no laws of evidence? A short time ago the nation was asked to give its sanction to a great political transaction. A very large and influential minority could only see in it "spoliation and robbery;" while the majority regarded it as carrying out a "great and just policy" towards Ireland: would this difference of opinion entitle any one to maintain that there are no principles of morality and justice? And, again, when the principles of morality and justice come to be discussed, there are the widest differences of opinion as to what constitutes the standard of right and wrong which should be taken as the basis of ethics: would any one on this account maintain that the principles of ethics are non-existent? No writer on ethics will deny the existence of these principles. All writers, of whatever school, endeavour to give greater precision to our mode of expressing them, and to give us a test or tests by which we attain to a greater certainty in their application. Such then ought to be the aim of those who undertake to write upon the principles of medicine.

THE TREATMENT OF CHRONIC RHEUMATOID ARTHRITIS.

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IT may seem rather discouraging to begin a paper by finding fault, but I must contend that we are still in want of a name accurately connoting the above disease. I adopt *Rheumatoid Arthritis* as the best name available, not the best possible. "Rheumatic Gout" suggests two false ideas; "Rheumatoid Arthritis" only one, and therefore it is preferred. I venture to suggest *Chronic Nodular Arthritis* as a title which expresses pretty nearly what we are in search of.

Some preliminary remarks are necessary on the essential nature of the disease, and its absolute diagnosis.

Rheumatoid Arthritis is a form of mal-nutrition, affecting special structures. It is a perversion of nutrition, which sometimes so nearly approaches inflammation, that systematic writers have described an acute manifestation of the disease,¹ attended by local heat and general pyrexial movement. By the rapidity of tissue-metamorphosis, grave, perhaps incurable, injury may be inflicted in a short time. The textures liable to this quick or slow damage are—synovial membranes, articular cartilages, joint-ends of bones, and the surrounding mechanical auxiliaries of a joint, such as ligaments and tendons. Some or all of these tissues may be affected in a single joint; the most hopeless morbid changes are those involving articular cartilage and bone. To the inquiry what these changes are, the answer given by Adams is, that they consist partly of hypertrophy, and partly

¹ Dr. Garrod in the "System of Medicine," vol. i. p. 879, 1st edition.

of fatty degeneration ; besides the development of "vegetations" and "bands" of cartilage and bone.

Now for the diagnosis. This is sometimes a matter of comparative difficulty, not because other diseases have any radical affinity to Rheumatoid Arthritis, but because they involve the same structures. A patient walks lamely into a consulting-room, and shows to a physician or a surgeon a "big knee."¹ Let us ask ourselves carefully how the knee may have got this bigness. (*a*) Perhaps it is the sequel of an acute rheumatism ; a febrile rheumatism lighting most severely upon that one joint, and maiming it either by excessive fibrinous exudation on the outside, or by injury to synovial membrane and cartilage within. What is popularly (and even professionally) called *chronic* rheumatism, is mostly not rheumatism at all, but the disease named in the title of this paper. (*b*) Chronic gout may have affected the knee, and there may have been acute exacerbations. (*c*) Is it a so-called hysterical knee, a heavy clumsy dead-weight, with all the textures around coarse and thick ? Dr. Ogle has furnished a key to these cases in showing that "under certain nerve-influences operating from a distance, we may have great vascular, nervous, and other disturbance in individual parts of the body, simulating ordinary inflammation."² It is scarcely possible to confound a large bursa patellæ with structural alteration of a joint ; but the fact must be put on record that a right distinction has not always been made. (*d*) Strumous synovitis must be borne in mind, and the physiological context of the patient will require a study. (*e*) Is it the relic of a pyæmic disease of the joint, such as happens during a specific fever ? (*f*) Syphilis often invades the articular structures, producing periosteal thickening, and a sub-acute osteitis. (*g*) The possibility of a commencing mollities ossium must not be forgotten. (*h*) Inquire if there have been any traumatic injury, such as luxation or contusion. (*i*) Everything else being fairly excluded, it becomes a tolerable certainty that we have to deal with the condition called Rheumatoid Arthritis, the subject of my paper.

¹ Of all diseases, rheumatoid arthritis deserves most distinctly to be called *medico-chirurgical* ; in other words, the physician and the surgeon may honourably compete with the best resources of their arts to do it good.

² Brit. Med. Journal, July 16, 1870.

An exact analysis of the history which a patient gives will generally save us from going wrong. The therapeutic questions which I shall discuss presently will show the paramount importance of distinguishing real gout and real rheumatism from Rheumatoid Arthritis; but the necessity is still more urgent for distinguishing the syphilitic lesion. A man has lately been under my care at the Eastern Dispensary, Bath, who nearly a year ago was advised by good medical authority to drink and to bathe in the Bath thermal waters, on account of severe "rheumatic" pain in several of his joints; these pains being always so severe at night as to spoil nearly all sleep. He had, however, never suffered acute rheumatism, nor had he been exposed to rheumatic influences. When, after a month's assiduous trial, no benefit was found to result from this plan, he was advised to discontinue using the thermal waters, and to trust to "patience" and "change of air" to restore his health. After nearly a year's more trouble he applied to me, but even then he did not in the least connect his pain with a syphilitic contagion, which he did not at all deny, though he had never been asked about it. Both knees were slightly swollen, and so was one elbow. Like several other cases of the same kind that I have seen, this man was so quickly relieved and seemingly cured by appropriate treatment, as to make me protest once more against the lazy intellectual habit of pronouncing every painful joint to be afflicted with "rheumatism." Lancereaux, and several English writers, have drawn the diagnosis with precision and care.

I pass now to the immediate topic of my paper—the treatment of Chronic Rheumatoid Arthritis.

At the very outset it may be said that so much may often be done to combat this disease in its early stage, that there is every encouragement to act with promptness and energy; but these desirable qualities must be backed up by knowledge, and by practical attention to even trivial details.

Two keys are indispensable to unlock the therapeutics of Rheumatoid Arthritis, whether acute or chronic: (*a*) that it is a disease of depressed nutrition; (*b*) that it has no pathological relationship whatever with rheumatism or gout. These postulates being admitted, we shall discover ample reason for supporting the general health. We shall try to control those agencies

which may have undermined the strength for some time before, and we shall reinforce the vital powers by every medicinal and dietetic means. In women, early and rapid child-bearing will sometimes induce a phase of the disease not exactly acute, but not less fiercely certain in its ultimate crippling ravages. The companion function of lactation is no less sure in the ruin which it brings to particular constitutions: so also the morbid conditions of leucorrhœa and menorrhagia. It is not enough to administer the proper tonics which these states suggest; we must stop the flux which saps nerve-power and deteriorates tissue-formation. Keeping ourselves on the watch for the earliest signs of the disease, we may, directly those signs are unmistakable, begin with two or three grains of quinine in solution, two or three times a day; and cod-liver oil is usually so beneficial that it should be given (if possible) with the quinine, at first in quantities of a teaspoonful, and, if it agrees well, it may be rapidly increased until two or three ounces are taken daily. In the pure non-febrile cases, the sulphate or nitrate of iron may be combined with the quinine—as a rule in small doses, and continued for a long time. The diet should be abundant, and rich in protein and hydrocarbons: in some cases I have given several pints of milk and cream every day, and with very remarkable advantage. *Mutatis mutandis*, the incipient rheumatoid arthritis of more mature and senile years may be treated in the same way.

When the enemy has got the start of us by some months, and a case does not come under our legitimate care until several joints are affected with thickening, swelling, and almost ankylosis, iodide of potassium may be given in sufficient doses, in union with cinchona bark or iron; and cod-liver oil must on every account be persevered with.¹ It is now that the local treatment becomes of high importance, and requires to be stated in detail. It is assumed that an ideal case is presented, in which there is no irreparable ankylosis of prominent joints, however stiff and even immovable some of these may at present seem to be. A person is supposed to be able to use the limbs, and the

¹ Let no practitioner think that he is administering iodine and iron for any useful purpose when he prescribes *Syrupus ferri iodidi*. Few medicines of such high repute are so comparatively inert. My own experience does not lead me to think much of the value of guaiacum, and it is not a nice drug to take.

muscles are supposed to be not hopelessly atrophied. I begin, then, by bandaging the feet and legs up to the knees, with domestic flannel bandages in winter, and with bandages composed of thin calico in the summer. These are always worn during the day; they serve to support the weak muscles, and to remove the quasi-œdema of lax tissues. The knees, provided that there be about them no inflammation or pain, should be clasped with laced kneecaps, which ought to be applied every morning, and directly the patient gets out of bed the attendant should douche the joints with cold water (slightly warmed in winter) for one or two minutes, and then immediately rub them systematically with the hands until they are warm and dry.¹ If the knees are at all tender, they should be enveloped in oil-silk lined with soft wadding, fastened around each joint with tapes tied above and below. Now and then the *linimentum potassii iodidi cum sapone* can be gently rubbed in, or flannels soaked in diluted tincture of iodine and glycerine may be wrapped around the knees under the covering of wadding and oil-silk.

Thus equipped as regards the lower limbs, the use of crutches must be strenuously urged, both for the sake of exercising the muscles and to sustain the motility of the joints. The patient should be encouraged to walk around his room several times a day, once or twice on each occasion; and in summer on a plane surface in a garden.² If there be a weakness of the muscles of the back, so that the body falls too forward on the crutches, a towel may be fastened around the waist, and its ends held by an attendant walking behind; a hunting-belt answers the purpose still better. I cannot too strongly protest against the fine therapeutic doctrine of "rest" being so caricatured as to imprison a joint in splints for weeks or months at a time; the last hope of rescuing it from permanent uselessness may thus be destroyed. Intercurrent attacks of inflammation may peremptorily require a joint to be rested; to be placed for a few days on a back splint, to be poulticed, or even mildly blistered; but this is

¹ I learnt this excellent plan from a clinical lecture by Dr. H. W. Fuller, in the *Lancet* of January 31, 1863.

² The length of the crutches is a point requiring careful adjustment; and it is wise to provide each crutch with two transverse bars, recommending the patient always to use, where possible, the lower one.

quite a different thing from putting it, whether inflamed or not, into a splint-case or box, and condemning it on principle to a chronic fixed position.

The treatment of the upper limbs demands not less assiduous care. Any of the joints can be douched and rubbed in the manner before described. Constant movement of the joints, short of producing pain or fatigue, should be promoted in every way. The fingers of one hand may manipulate those of the other, alternately bending and extending them; the hand should frequently clasp a tense (not *too* tense) india-rubber ball, or a ball of worsted, or a large orange. A common kitchen roller-pin is an excellent device, the hands working up from the ends to the middle, and then back again; and the moderate use of a piano, when possible, is always to be commended. It is of much importance to attend to the wrists. The arm being firmly held by an attendant, the hand should be alternately bent and extended; and the patient himself can often rub the wrist (back and front) of one side with the outstretched palm of the other hand. The elbows are exercised by the patient grasping a mantelpiece (or an object of the same height), and walking a little way to and fro. In order to benefit the shoulders, the patient should be steadily seated, and the upper arms raised as far as possible towards the head, taking care that the scapulæ are fixed, or at least do not rotate much with the arms; and the patient may now and then sit for a few minutes at a time, with the arms supported at (or towards) a right angle with the body.¹ In all active or passive movements, nothing approaching to force ought ever to be used; and Dr. Garrod's rule is a sound one, that we should never allow such an amount of movement as will cause the joint to be more painful on the following day.

Little can be done for the "rheumatoid" lesions of the vertebrae; but the sad result of ankylosis of these bones ought to be an additional motive for eager endeavour to arrest the disease. Perhaps there is no more characteristic mark of a person being afflicted with rheumatoid arthritis than this ankylosis of the cervical spine; however slight it may be, it will pretty safely determine an otherwise doubtful diagnosis. The other objective

¹ The Bath Mineral Water Hospital is liberally fitted up with every mechanical apparatus for the exercise of joints and muscles.

notes of a case may not be quite clear, but if a person sitting before us moves the eyes about without that play and pose of head which is the natural expression of feeling, and if the body turns a little this way and that, in order that the head may go along with it, we may fairly infer that the neck is somewhat unbending and non-rotatory, and that we have to deal with an obstinate constitutional diathesis.

What are the scope and limits of *counter-irritation*? Not extensive; but yet something may be done by its means. I have not derived much service from the use of blisters, though the analogy of acute rheumatism would have led one to expect some substantial good. The *linimentum iodidi* may be painted in circles around the larger joints, taking care that it does not provoke a greater irritation than that which it is intended to control; and it may be pencilled in semi-lunar patches on the cardiac side of the smaller joints. A mustard-leaf may be cut up into fragments, moistened in warm water, and put here and there over knees and shoulders: and a turpentine stupe, a hot sponge, and mustard and linseed poultices, have their respective uses and benefits.

The Bath thermal waters have such traditional name and fame, that the stranger asks what they are *not* good for, rather than for what they are. Their chemical and dynamical properties explain why they are antidotal to rheumatism and gout; and we take advantage of a great natural gift to construct baths in which the rheumatoid cripple may soak away some of his discomforts and pains, and in which the convalescent may move and play about as in a soft warm medium. "Dry" and "wet" douches can be directed on the morbid joints and limbs, and every help is contrived for the aged and the infirm. It is impossible to enumerate here all the precautions which the invalid must take, or the conditions which he must observe according to the season of the year. Let it suffice to say that a number of rheumatoid males and females of the poorer class are discharged every year from the Bath Mineral Water Hospital cured, or at least greatly relieved; though, of course, much must be set to the account of rest, better food, and better hygiene.¹

¹ Patients often complain of *more* pain in their joints on the day after a bath; and it is an old observation that hot baths may induce a fit of acute gout.

There are other points of interest in the dietetic and medicinal treatment of Rheumatoid Arthritis. Mistakes are sometimes made in withholding meat and alcohol, either from an obstinate confusion of ideas between rheumatoid arthritis and gout, or from an ignorance of the real pathology of the former disease. A lady now under my care had been told by a very eminent physician to live like a "child of a year old," that is, entirely on milk and eggs; and on the same principle she had been forbidden to take malt liquors, or anything stronger than light wines. The result had been unqualifiedly disastrous. In deprecating "lowering" treatment, I do not mean merely the use of depletion (which no one now dreams of), but the withholding of those nutritional tonics and auxiliaries to nutrition of which there ought to be an abundance. There can be no objection to allowing a patient a moderate (and sufficient) quantity of good stout, or Burton ale, or brown sherry; indeed, one or other of these articles is in most cases a necessity. And it must be a singularly misleading association of ideas which can hinder a person from consuming a proper amount of the protein principles of food.

An adequate quantity of sleep is of much moment. Sleep is frequently much disturbed by that motorial symptom called *fidgetiness*—and which may produce even the sensorial aberration of pain if the body cannot adapt itself to the craving for a constant change of position in bed; and if an invalid be very helpless, the attendant's rest must be much broken. I cannot explain the timidity of many medical men in refusing to a patient a necessary hypnotic medicine. They will administer the secondary hypnotics without stint—such as bromide of potassium, henbane, Indian hemp, and hydrate of chloral; but these often entirely fail, and even distinctly disagree in many ways. The *facile princeps* of hypnotics—the one remedy always at hand, morphia—is refused or neglected. The case of the lady just quoted is an example of what may happen when morphia is not permitted. She had had no sleep for nearly a year; she was nearly worn out with vigils, and her nights were contemplated with dread. Thinking that morphia must have been tried, and had not been found to agree, I gave her very tentatively one evening a morphia lozenge (Ph. B.), which soothed her for an hour; and

soon she took four lozenges every evening with remarkably good effect. Ultimately she took a quarter of a grain of morphia in solution at bedtime every night, and three or four lozenges in the early morning hours ; and she always awoke very much refreshed, without sickness, headache, or constipation. In like manner a Dispensary patient, a poor young man afflicted with rheumatoid arthritis in its final and incurable form, has been taking for eight years four or five grains of opium daily, with the result of making endurable what would otherwise have been a life of hopeless wretchedness.

Moreover, we ought to remember the *nutritional* value of sound and regular sleep. Not only is plastic force quickened by sleep, but it is possible for a profound diathesis to be lulled into temporary inactivity. In 1867 I visited a Dispensary patient, a worn-out elderly man, who was not only very much crippled, but tortured with severe pains in several joints. I ordered him nothing but small doses of morphia several times a day, which he took regularly until the summer of 1869, when he astonished me one morning by scrambling down to my out-patient room, able to totter about with comparative ease. Now, the difference in this man consisted mainly in this—that though the joints locked up in partial ankylosis were not mended, yet the muscles generally were immensely improved in nutritive tone and energy. It was vexatious to lose this patient in the next winter by an accidental attack of pneumonia and delirium.

The judicious practitioner will regulate the action of the bowels of his rheumatoid patient by proper diet and medicine ; a small quantity of Friedrichshall water every day is a good agent for this purpose, and its efficacy is enhanced by the addition of a little boiling water. The Carlsbad water is better in summer-time, as its action is slower and more gentle. An occasional small dose of the *pilule ferri et aloës* (Ph. B.) may be advisable. The urine should always be examined once, but it is seldom disordered except by intercurrent pyrexia. I have heard of an electro-chemical bath establishment at Leeds as doing service in some cases of disabled muscles ; but it is necessary to remember that wasting of muscles is a secondary effect of immobility (partial or complete) of neighbouring joints ; it is of no use to try and galvanize muscles into fresh life when the

static conditions are in abeyance which call those muscles into exercise. The nutrition of a group of muscles suffers simply because they are not used, or not used enough; and the ankylosis of bony structures may for ever preclude the hope of restored function. Vapour-baths are now and then recommended, and there are none more commodious in Europe than at Aix-la-Chapelle: the system of shampooing conducted there is very thorough indeed. I visited Aix in the summer of 1863, and found that everything was done during the season to cheer and renovate invalids.

After all, there are some chronic cases which must be pronounced irremediable, either from the intensity of the diathesis or from the permanent nature of the changes induced in the affected joints. The "Bath waters" are not a miraculous pool, though people sometimes come to Bath with the firm conviction that their infirmities and sufferings must be, or ought to be, relieved. We should be candid in our advice and prognosis, for any under-statement of the gravity of a case will only be followed by disappointment and distrust. I am persuaded that an immense deal may be done for Rheumatoid Arthritis in the early stage; and I have been somewhat minute in my outline of the treatment, because a mere statement of general principles often leaves a faint impression on the mind, if those principles are not applied with precision to every detail of the patients immediately before us.

OBSERVATIONS ON THE HYGIENE OF VISION.

BY ROBERT BRUDENELL CARTER, F.R.C.S.

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PART III.

THE simplest form of derangement in the muscular action of the eye is that which occurs in ordinary presbyopia. In this condition, while the gradual hardening of the lens requires constantly increasing accommodation effort to produce a given effect, no similar obstacle is opposed to the production of convergence. The result is, that the two functions can no longer work harmoniously, and that sensations of fatigue and straining are produced. Let us assume that eighteen inches is the normal reading distance for an adult, and that precisely parallel efforts are required to accommodate each eye for, and to converge both eyes to, that distance. . After a while presbyopia steals on ; and then the patient requires as much accommodation *effort*, to give clear vision at eighteen inches, as would formerly have sufficed to give clear vision, say, at twelve inches. If he maintains his eighteen-inch reading distance he increases his accommodation effort by one-third, while his convergence effort remains unchanged. If he retains his original accommodation effort, accepting its smaller result, and moves his book to a distance of twenty-seven inches, he then requires to diminish his convergence effort by one-third. In either case, he disturbs the natural harmony between the two functions ; and soon suffers from decided pain or inconvenience. This pain, it must be observed, is produced solely by excess or perversion of muscular effort, and not at all by imperfect seeing. Failing sight *per se*, as, for example, in the case of progressive atrophy of the optic nerve, is quite painless ; and

pain is only felt in those cases in which vision is improved so long as a certain muscular effort can be maintained. The fact that the eyes ache after exertion may, as a rule, be taken to prove that the patient suffers from an imperfection which can be relieved or cured by the aid of optical means alone.

It has long been the custom, in the treatment of presbyopia, to commence with very weak convex spectacles, and to advise their use only by artificial light. After a few months or a year these spectacles no longer meet the difficulty. They are then used by daylight, and a stronger pair obtained for the evening. It is found that the presbyopic eyes become tired and strained without glasses, and that they also become tired and strained if the glasses worn are even a little too strong. The *rationale* of this deserves a moment's consideration.

When presbyopia first becomes an inconvenience, it does so simply on account of the breach of harmony between accommodation and convergence. The newspaper, held at eighteen inches' distance, requires as much accommodation effort as would have sufficed, a short time before, for a distance of thirteen inches, but it still requires, of course, only the old convergence effort for the actual distance of eighteen inches. The eyes, therefore, may be regarded as accommodating for thirteen inches whilst they are only converging to eighteen. Now, a convex lens outside the eye rests the accommodation by rendering an equivalent quantity of increased convexity of the internal lens unnecessary. A lens of forty-five inches' focal length almost precisely represents the difference between accommodation for thirteen inches and for eighteen; and such a lens, therefore, restores the equilibrium that has been disturbed, and renders the accommodation effort and convergence effort the same. Anything stronger than this, a 24-inch lens, for example, would be an over compensation, which would require an accommodation effort less than that of the convergence, and would produce strain by this new disparity. If presbyopia were a fixed instead of a progressive affection, the 45-inch lenses would cure it once for all. In actual fact they only correct the accomplished portion of a progressive change, and they leave the eyes still on the threshold of presbyopia, compelled to use a considerable accommodation effort. After a time this again creeps so far ahead of the con-

vergence effort that the disparity once more becomes painful, and then an increase of power is required in order to redress the balance. An eminent man of science, now many years ago, wrote an article on spectacles in one of the Reviews, and laid great stress upon the evils of increasing the power of the glasses used in presbyopia. His counsels, although they had no root whatever in facts, sank very deeply into the public mind; and it has become a prevailing superstition that glasses of too great strength are above all things to be avoided. It is true that a pair of glasses will produce uneasy sensations as soon as they are strong enough to relax accommodation in excess of the relaxation of convergence; but proof that this is the only harm they do is furnished by the daily experience of watchmakers and other workmen, who, all their lives long, constantly use a glass of high power for one eye only, and never suffer from doing so. As the other eye is closed, no effort of convergence upon the near object is called for; and hence the ease of relaxed accommodation brings in its train no compensating disadvantages.

A moderately strong convex lens is, of course, in many respects much more advantageous than a weaker one. The strong lens allows the object to be brought so near the eye that the latter receives abundant light; and the greater enlargement of the retinal images affords increased facilities for recognizing their nature. A person whose presbyopia is but just beginning to make itself felt, and who would not bear spectacles of a higher power than about 40-inch focal length without inconvenience, would find an 18-inch reading lens, for one eye only, perfectly delightful. It would, if we take reading as an illustration, convert a badly-printed octavo page into the semblance of a well-printed quarto, enlarging the characters, brightening the general surface, and rendering it easy to read in a comparatively dim or failing light.

The desideratum for the presbyopic, therefore, is a means which shall relieve the convergence strain incidental to a pair of strong lenses, and shall thus render practicable the employment of spectacles which will give absolute rest to the accommodation. The principle on which this might be effected was first pointed out by Dr. Giraud-Teulon; but it was reserved for Dr. Scheffler, of Brunswick, to work out the problem to its ultimate solution,

and to call attention to the various details necessary to be considered in practice.

Allusion has already been made to the effect of prisms in modifying the action of spherical glasses; and of this we have a familiar illustration in the common stereoscope, in which the magnifying glasses are also prismatic, and enable the spectator to look easily with both eyes at a surface only four or five inches distant. The deflection of light by a prism is of such a nature that any object seen through one has its apparent position moved towards the side to which the edge of the prism is turned. Let us suppose that the object is placed exactly in the middle line in front of the observer, and so that a straight line drawn from it would strike the root of the nose. If the left eye be then closed, and a prism held before the right, the apparent position of the object will be altered. If the edge of the prism be turned outwards towards the temple, the object will appear placed more towards the right of the spectator than it actually is. If the edge be turned towards the nose, the object will be displaced towards the left. The degree of displacement will depend, of course, on the distance of the object and the angular measurement of the prism; but, assuming that the object is eighteen inches from the root of the nose, and that the centres of the eyeballs are sixty-six millimetres (rather less than two inches and five-eighths) apart, a prism of seven and a half degrees of angular measurement, with its edge outwards, will bring the object to be apparently opposite the right eye when in a state of repose; that is, will cause an apparent deviation of thirty-three millimetres. In other words, in order, through such a prism, to see the object placed as described, the eye must be directed straight forwards, with its convergence absolutely at rest. If a similar prism be placed before the other eye, this also will be influenced in the same manner; and single vision of the near object will only be gained when the axes of the two eyes are parallel, and all the muscles of direction are passive. At the same time, as the object is really only eighteen inches distant, the rays proceeding from it require an effort of accommodation which, in repose of the convergence, would very soon become painful or fatiguing.

Let us now add to the supposed prisms a pair of convex

lenses of 18 inches' focal length. The effect will be that the lenses will remove all need for the exercise of accommodation, while the prisms remove all need for the exercise of convergence; and, as far as regards an object eighteen inches distant, the two eyes may look at it for an indefinite time without exertion or fatigue. The lenses may be ground upon the prisms by giving the necessary convexity to their surfaces; and we then have what Dr. Scheffler has called "orthoscopic spectacles."

With a pair of these orthoscopic spectacles a presbyopic person may read for hours without a sensation to remind him of his eyes, on the sole condition that his book is kept at, or just a little within, the focal length of the prismatic lenses. There is a perfect absence of effort, as much so as in looking at the far horizon; and all the sensations of strain that attend upon common spectacles are removed as if by enchantment. The only inconvenience is that the surface of the page is made to appear as if it were somewhat convex; but this soon ceases to be observed.

It is manifest from the foregoing that every power of lens will have a corresponding angular measurement of prism that stands in the "orthoscopic" relation to it, and that orthoscopic spectacles may be made of any focal length. In practice, however, since the angular measurement of the prism increases rapidly as the focal length of the lens diminishes, the range of powers is very limited. I myself prescribe only four varieties, and, for the great majority of cases, only two. I take as the unit of power a lens of the focal length of 240 centimetres, and the successive steps are equal to two, three, four, five, and six such lenses; while every unit requires a prism of nearly one degree and a half angular measurement. The effect of the first and second of this series upon accommodation is almost too slight to require the aid of a prism for the relief of the convergence; the third hardly magnifies enough to give the full advantage of an orthoscopic combination; and in the sixth, the thickness of the glass is already becoming an inconvenience. But the fourth, a convex lens of sixty centimetres focal length on a prism of six degrees, and the fifth, a lens of forty-eight centimetres on a prism of seven and a half degrees, are combinations of the highest practical value. On account of the

differences between English, French, and German inches, I prefer to state the focal length in centimetres, but the following table gives the exact value of all the factors in the combinations mentioned above:—

Number of combination.	Focal length of lens in centimetres.	Focal length of lens in Paris inches.	Angular measurement of prism to form the orthoscopic combination when the centres of the eyes are 66 millimetres apart.
1	240	88·66	1° 29' 10"
2	120	44·33	2° 58' 23"
3	80	29·55	4° 27' 37"
4	60	22·16	5° 56' 54"
5	48	17·73	7° 26' 14"
6	40	14·78	8° 55' 39"

Neither the accommodation nor the convergence is affected by the small quantities expressed by decimals or odd minutes and seconds in the foregoing table; and my combinations 4 and 5 are prescribed simply as convex spectacles of 22 Paris inches, or of 18 Paris inches, on prisms of six or of seven and a half degrees. The test of such glasses being perfectly "orthoscopic" is that the two lenses, when fixed in their frame, should cast only a single image at their focal length; and this requires some careful adjustment on the part of the optician.

For cases of ordinary presbyopia, in normal eyes, I have now altogether abandoned the practice of recommending weak common spectacles, which leave the patient struggling on the very brink of his infirmity, and compel him always to exert his ocular muscles to the full extent of their powers. I prescribe at once the No. 4 or No. 5 orthoscopic combination, to be used for reading or other very fine work only. With this help, the occupations that would otherwise strain and tax the eyes are pursued absolutely without effort; and the muscle of accommodation, never overworked, preserves its vigour and activity much longer than it would if daily called upon for severe or excessive exertion. I am fully convinced that the frequent over-fatigue of aged eyes is an important factor in the causation both of cataract and of glaucoma, and entertain no doubt that the general employment of orthoscopic spectacles would very materially contribute to the preservation of sight.

In looking through a convex lens, the range of clear vision is bounded by the distance of its focal length. The combination No. 5 would therefore be too strong if the object of vision were necessarily placed more than eighteen inches from the eyes; and, in like manner, No. 4 would be too strong if the object were distant more than twenty inches. A musician, or a person following some other special occupation, might require the more distant sight afforded by No. 3; but for ordinary purposes, and especially for reading, this does not enlarge and illuminate the page sufficiently to give the full comfort and advantage that may easily be obtained from higher powers.

In first wearing spectacles of such a power as the No. 4 or 5, the presbyope will feel two inconveniences from which weaker glasses are exempt. In the first place, he will have no clear vision beyond the focal length of the lenses, although everything within that range will be clear and magnified. In the next place, if he has occasion to lay the glasses aside, the sudden change produced by their removal, the sudden darkening and diminution of near objects, is almost startling. The former difficulty may be met by having the frames carefully fitted, and the lenses cut of such a shape that it is easy to look over them; the latter by the simple expedient of closing the eyes for an instant as the glasses are removed.

The accurately orthoscopic combinations are only available for normal eyes, or at least for eyes in which there exists the normal relation between accommodation and convergence. The presbyopic person who has gradually become habituated to some disturbance of this relation, or in whom some degree of hypermetropia has either always existed or has been developed as life advanced, will require prismatic lenses of somewhat modified proportion. In all these cases there is the habit of using accommodation in excess of convergence; and, by the measure of this excess, the strength of the lens must preponderate over that of the prism. In a person, for example, whose distant vision was assisted by a convex lens of forty-four inches focal length (No. 2 of the table on p. 94), while for comfortable reading he required a lens of fifteen inches (No. 6), the prism proper for No. 2 should be deducted from that proper to No. 6, and the prescription should be for lenses of fifteen inches, ground upon prisms

of six degrees. In other words, it would be proper to leave out just so much prism as would properly appertain to the glass required for distance. In cases of very advanced presbyopia, in which the power to modify the convexity of the crystalline lens is almost wholly lost, the same expedient must be resorted to, and lenses of high powers be ground upon prisms of very moderate angular measurement. In any such case, the test of the prescription being accurately carried out will be that the addition of the missing prismatic element will render the spectacles orthoscopic. In the example given, for instance, prisms of three degrees held before the glasses would unite into one the separate images which, at their own focal length, the glasses alone would cast upon a screen.

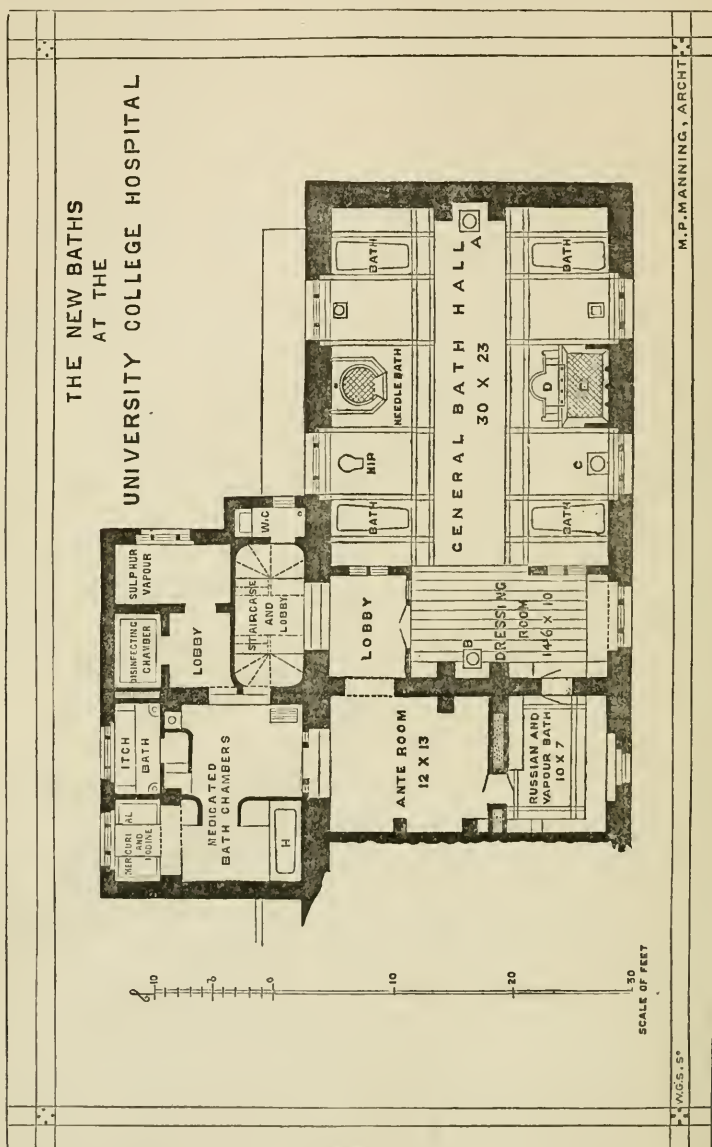
It will perhaps help to a better understanding of the accurately orthoscopic combination if I point out that the two lenses of the spectacles are, in fact, portions of a single larger lens. They are the portions through which the two eyes would respectively look if a lens of about four inches in diameter were held up before the face with its centre opposite to the root of the nose. And as the whole lens would form only a single image at its focal length, so it is manifest that the images formed by its two portions must coalesce when these portions preserve in the spectacle frame the same relative positions that they held in the unbroken glass. Dr. Scheffler believed that to cut up a large lens into three pairs of spectacle lenses would be the most economical mode of manufacture, but I find that opticians prefer to grind each lens singly upon a plane prism of the necessary angular measurement. The other method, however, is of great practical value in certain cases, since, by taking a large lens somewhat wider or narrower than the distance between the eyes would require, and by slightly approximating or separating the detached portions in a spectacle frame, we have a very delicate means of slightly modifying the orthoscopic relation, and of giving to either the lens or the prism any small degree of preponderance that we may desire. For larger deviations from the orthoscopic standard the separate grinding upon prisms affords the only means, and must therefore frequently be employed to fulfil the indications that present themselves in practice.

To be continued.

THE NEW BATHS AT UNIVERSITY COLLEGE HOSPITAL.

AT length the important addition to the therapeutic machinery of University College Hospital, projected several months since, and consisting of a complete service of medicated baths of the most varied kinds, has been made to that institution. The baths will, in a few days, be in working order; and as they form not only a novelty in hospital appliances, but have been constructed with particular attention to details, and are intended to be made available for the treatment not only of cutaneous ailments, but also other diseases both acute and chronic, a brief account of them will be no doubt read with interest by our readers. We may premise that these baths have been provided through the exertions of Dr. Tilbury Fox, the physician to the department for diseases of the skin, who has raised the necessary funds single-handed, and has sought the assistance in the elaboration of his plans of Mr. Michael P. Manning, well known for his happy utilisation of space in hospital construction, and for the consideration which he evidently bestows upon matters of mere detail and sanitary requirements, and which has borne fruit in the excellence of the results he has obtained at the Epileptic Hospital and other institutions. The proper use of baths, and the efficient application of remedies in connection therewith by suitable attendants, is, as has been well said, one of the particulars in which the ordinary treatment at hospitals in this country falls lamentably short of that almost universally adopted abroad. Let us hope that in the present case the provision of proper baths will pave the way for their general introduction into the medical institutions of this country, and prove a great gain to therapeutical science. The baths, of which the annexed plan gives a good general idea, really consist of two distinct

parts: the one in which contagious skin complaints are to be treated, disinfection of clothes practised, and fumigations with



various metallic vapours practised, and the other in which ordinary baths, liquid chemical applications, douche, shower, hot air,

and hot vapour baths will be given. The arrangement in this respect is an excellent one. On entering from above, the staircase, excellently lighted from the roof, branches off to the left into the department for contagious skin complaints, and to the right into the general bath hall. The latter is approached from the lobby indicated in the plan, and at one end has attached to it a dressing platform, separated by a partition, and serving for the patients who are using the baths in the hall itself and the Russian or vapour bath. It is scarcely necessary to describe the general bath hall, which is 30 feet by 23 feet, as the plan indicates its contents; but attention may be directed to one or two special points. In the first place, there is a special outlet into the sewer—some fifteen feet from the external wall of the building—from this part of the baths, and the drainage from the whole of the baths passes separately and directly to this outfall. The drainage of the rest of the hospital runs in a different direction altogether. Special care has been taken to securely trap the drains. The waste of the steam, which is used to heat the baths and the water required, is made to blow away directly into the sewer. At E is the arrangement for douches. This is a place 8 feet by about 8 feet, built in the form of a square trough, of a foot and a half in depth; and it is arranged in this way in order that the water may be employed in goodly volume without any overflow, and that it may be readily carried off at the same time. This douche bath is approached by two steps from the side, and there are two steps down into it; and this is the way in which the depth is obtained. D is a platform upon which the operator stands; and he has at hand the various handles which work the several shower, wave, solid column, and other douches. The needle bath, on the opposite side of the room, is arranged upon a similar plan. These baths will be used in cases of nervous affections, rheumatism, neuralgia, chronic urticaria, certain cases of psoriasis, eczema, and pemphigus probably. The four baths are porcelain, and in them may be used alkaline and acid, as well as ordinary water baths. The small bath at C is an uterine douche, arranged upon a novel principle, so as to afford the means of employing cold to the uterine organs, the vagina, &c. The Russian bath is rather larger than is indicated in the plan; it is 10 feet by 12 feet, and it is

heated by radiation. The means for ventilating this room have been very carefully attended to, because in treating diseased patients it has been deemed most desirable to supply them with plenty of fresh and good air. There is an open grating each side of the window, leading to two channels that incline downwards and then inwards, so as to meet at the middle line, about one foot below the window frame; from thence a single passage runs, first to the bottom of the floor beneath the window, then along the side of the room to the left and the right, and round the next side, on the left hand, as indicated in the plan. There are three inlets a few inches from the floor line, in each of the two sides of the room, *i.e.* that in which the window is placed and that to the left of this, along which the air-channel for the egress of fresh air runs; and the amount admitted is regulated by a valve, worked by a handle just below the window. The egress of air is permitted to take place at the top of the room and on the right-hand side, into the chimney, through a grating guarded by a valve, so that the current of air admitted is quite under control. The furnace is placed in one corner of the room, and the flue, made of fire-tiles, courses round three of its sides first of all, above the fresh-air flue on the two sides where it exits, and is then returned to and fro thrice across the room, beneath the floor made of fire-tiles, which forms the upper covering of the flue here, until it arrives at the point whence it started, when it is carried up beside the stove into a chimney above. Thus the fresh air admitted into the room is gently warmed by passing under the flue in a certain part of its course, and the room is heated by radiation from the fire-tiles of the flue from the floor and sides, and without the fear of oxidation taking place, which is the case when iron surfaces are employed. This room is also arranged for a vapour bath. A steam jet is placed so that steam, when required, can be readily and freely admitted. The cases appropriate for treatment in this room would be Bright's disease, acute rheumatism, amongst general diseases; and lichen, true prurigo (not phtheiriasis), pityriasis in some of its forms, pruritus, and some other affections, amongst cutaneous disorders. The general bath hall, it should be stated, is heated by two steam coils, one at either end, and the floor is tiled, the walls being cemented. But the most interest will pro-

bably be felt in the other section of the baths, devoted to the treatment of contagious skin complaints, and to certain forms of syphilitic disease. As before observed, this part of the building is reached by a separate entrance distinct from that leading to the general bath hall, and directly from the main staircase on the left-hand side. On descending we reach a very good dressing-room, to which are attached two recesses, in one of which, viz. that on the extreme left as indicated in the plan, are the mercurial vapour baths, the other being the itch bath. The bath for giving sulphuret of potassium, which remedy is regarded by Dr. Tilbury Fox as one of the most successful in certain cases of chronic diseases of the skin in a scaly condition, and for many cases of lichen urticatus, prurigo, certain cases of scabies, &c., is opposite the mercurial baths. The itch bath is a novelty. It is a walled-off recess, and so built as to receive a large amount of water without overflowing. This is effected by a couple of steps up and into the bath, as in the case of the douche baths in the general hall. Then there is a large marble slab at the back, upon which the patients can sit and apply the parasiticide, which they can place on a little shelf close beside them. Within reach are basins with supplies of hot and cold water, and above them is on either side a rose, from whence a stream of water, when issuing, can be made to fall so as to thoroughly rinse their bodies from head to foot. Dr. Fox proposes to cure his itch cases completely at a sitting of half an hour. From this room we enter, through another door, to the disinfecting chamber, which can be heated red-hot if desired, and has a special flue of its own, running to the top of the building, and in which the clothes of the itch and lousy patients will be hung up to be disinfected, whilst the patients are taking appropriate baths. The room on the extreme right is the "sulphur room," with double doors, for giving vapour sulphur baths, and this is supplied with steam. In the main room are boxes for macerating and steaming arms and legs when necessary, as in cases especially of psoriasis. There is no woodwork save the doors, and no paint about this section of the baths; the walls are cemented, so as to be easily and effectually cleansed by thorough washing. The floor is tiled, and the mercurial boxes are supplied with steam. The disinfecting chamber will be of the greatest value in the treat-

ment of the clothes of the patients suffering from so-called prurigo senilis, but more properly phtheiriasis or morbus pedicularis. At the present time the treatment consists of applications of parasitocides to the bodies of the affected, whilst the real cause of the mischief, the pediculi, dwell in the folds of the linen; and what is needed in these cases is the destruction of the vermin in the clothes, and a thorough cleansing with soap and water of the skin of the sufferer from phtheiriasis. This sketch of the baths will enable the reader to judge both of their completeness and their great value. There can be no question that the means at Dr. Tilbury Fox's disposal for the treatment of skin diseases at University College Hospital are exceptionally advantageous. We shall watch with some interest for important therapeutic results at his hands in a very troublesome class of diseases; meanwhile we cannot but say that great credit is due to him for having secured their erection and for their excellence in detail, as well as to the builders, Messrs. Jeakes and Co., and the architect, Mr. Manning, who have evidently entered into the undertaking *con amore*. The baths will well repay a visit, and will be open in the course of ten days or so to the inspection of any member of the profession. They may be seen on Tuesdays and Saturdays at 2 P.M.

[THE second part of Dr. Clouston's interesting paper on the Bodily Symptoms of Insanity is unavoidably delayed till our September number.—ED. PRACTITIONER.]

Reviews.

On Bone-setting (so-called) and its Relation to the Treatment of Joints crippled by Injury, Rheumatism, Inflammation, &c.
By WHARTON P. HOOD, M.D., M.R.C.S. London and New York: Macmillan & Co., 1871.

THIS book, which is an expanded reprint of some papers that appeared in the *Lancet*, forms one of the most interesting contributions to practical surgery that we have lately met with. Not only are the facts recorded evidently of much value in themselves, but the investigation which has led to their publication is an example of a kind of inquiry which is far too seldom made. In sober earnestness, we would express the belief that there is hardly anything more deleterious to the usefulness, and also to the credit of the regular medical and surgical profession, than the traditional way in which its members are accustomed to regard every form of quackery. To the average practitioner, in whatever nominal grade of the profession, a quack is simply an object that inspires him with feelings strongly resembling those of a bull that has had a red rag shaken before its face. That the quack really possesses valuable knowledge, which it would be well to disentangle from the mass of ignorance, and often of conscious deceit, with which it is mixed up, seems hardly ever to occur to our immaculate practitioners. The author of the book before us has adopted a wiser view. Chance gave him the opportunity of studying, at first-hand, the treatment employed by a very remarkable man—the late Mr. Hutton—and he has used that opportunity in a manner for which every reasonable member of our profession must surely be grateful to him.

Mr. Hutton was probably much the best-known and the most successful, in our days, of a class of irregular practitioners who are commonly called “bone-setters.” These men may be shortly described as persons wholly ignorant of anatomy and of systematic surgery, but adepts in the management of injuries and diseases of joints that have resulted in stiffness and inability to move the part without the production of pain so severe that the patient is reduced to a forced inaction. Theoretically, the bone-setter has only one idea as to the nature of the affec-

tion which he treats, and that idea is entirely erroneous; he believes, namely, that the joint has been dislocated, and that his manipulations restore it to its place. Dr. Wharton Hood's treatise satisfactorily shows that the mischief that really exists is adhesion, external to the joint, and that the bone-setter's treatment consists in the sudden rupture of this adhesion, whereupon the movements of the joint become free and painless. It is impossible for us to afford space to discuss the details of the method, but the reader will find them lucidly explained in the book, and illustrated by a series of woodcuts which are excellent both in an artistic and a practical point of view. What few further words we can add must be devoted to general remarks suggested by the statements of Dr. Hood, and by facts which have come under our personal knowledge respecting the remarkable success which has frequently been achieved by Mr. Hutton and by others who have adopted a similar mode of treatment for joints that have been crippled by former injury or disease.

The doctrine that joints which have been injured by blows, sprains, &c., or affected by inflammation, must be treated by prolonged *rest*, is just one of those striking half-truths which have in all ages been the curse of our profession. That an active process of inflammation in a joint cannot be subdued unless all movement be avoided is true enough; and the only wonder is that it should have needed the authority of Astley Cooper to impress it on the surgeons of *his* day, and that in our own time it should have been so far forgotten that another surgeon (who was not exactly an Astley Cooper) was able to make quite a handsome reputation out of its revival. But it seems equally extraordinary that surgeons should have so largely neglected the obvious fact that an organ like a joint, whose whole function is movement, cannot with impunity forego the exercise of that function for more than a very short period, and that the object of maintaining its natural vital condition unimpaired ought to be constantly kept in view from the very first. One of the most familiar, and at the same time one of the most inconvenient, results of neglecting this latter principle, is seen in the miserably crippled state in which patients are so frequently left after a sprain, say of the ankle, which has been treated in the first place by local antiphlogistic measures, and then by prolonged inaction. It seems probable that two kinds of local evil result from this treatment: in the first place the synovial secretion, lacking its natural stimulus from movement of the joint, diminishes, and the articulation thus becomes dry and stiff; and, secondly, the tendons in the neighbourhood, or some one tendon, perhaps, becomes bound down by lymph which has been effused immediately after the injury, and has

been allowed to pass undisturbed through the processes of consolidation and subsequent contraction. It was on such neglected limbs that Mr. Hutton used to achieve his striking successes: with the unerring instinct of long experience, he rapidly seized upon the point at which adhesions limited the movement of the joint and rendered them painful, and with a few swift and dexterous manipulations he would rupture the adhesion, and movement would at once become free and painless. But the really scientific treatment, as Dr. Hood shows, would be such as was attained, almost accidentally, in the plan for managing sprained ankle introduced by his father, Dr. Peter Hood, viz. the application of firm pressure by strapping from an early period, so as to support the joint; and the *insistence on movement*, which was thus rendered possible. It seems obvious to reason, and it has been clearly proved by the experience related in the volume before us, and by facts which have come under our own observation, that this principle is of the widest applicability; and that in the future we shall succeed, by employing combined support and passive movement, in averting an immense proportion of the misery and helplessness which belongs to the crippled state in which joints are so often left after the so-called "cure," not only of injuries, but also of rheumatism and of gout that have fallen into the chronic stage. We cannot imagine a more helpful contribution towards such better knowledge and practice than the facts and principles contained in Dr. Wharton Hood's treatise, which we strongly recommend to the study of the profession.

The Antiseptic System; a Treatise on Carbolic Acid and its Compounds; with Inquiries into the Germ Theories of Fermentation, Putrefaction, and Infection; the Theory and Practice of Disinfection, and the Application of Antiseptics, especially in Medicine and Surgery. By ARTHUR ERNEST SANSOM, M.D. Lond., M.R.C.P., Physician to the Royal Hospital for Diseases of the Chest, &c. London: Henry Gillman, 1871. 8vo. pp. 351.

THE ambition which has led Dr. Sansom to undertake the very large and difficult task which this book aims to carry out is every way honourable to him. The labour which it has entailed upon him must have been great, and there is but little prospect of those material rewards which are so easily obtained by writing on subjects in so-called "practical" medicine. Dr. Sansom has written a highly thoughtful essay, which, while it elaborately investigates the claims of carbolic acid and the carbolates to a prominent place among disinfectants, also courageously attacks the great questions respecting the nature of putrefactive processes,

which are inextricably bound up with the further vast inquiry whether life does, or does not, ever result from other sources besides pre-existing germs. Dr. Sansom ranges himself upon the side of the germ-theorists; and although we cannot say we find his arguments absolutely convincing, it may be allowed that he deals the Heterogenists some shrewd blows. Into this discussion it is of course impossible for us to enter; it is sufficient to note that for Dr. Sansom putrefactive processes uniformly depend upon the presence and development of vital germs: hence the most effective kinds of disinfectants are those which are best adapted to the destruction of those deleterious living organisms; and in this category Dr. Sansom gives carbolic acid and its compounds the first rank. And as regards so-called "zymotic" diseases, Dr. Sansom fully adopts the fermentative theory; and he explains the action of the various "antiseptics," sulphites, alcohol, benzin, carbolic acid, &c., not by the *deoxidizing* power to which Polli of Milan attributed their action, but decidedly by their capacity of arresting the vitality of those minute molecules which are the causes of morbid, as they are also (under other circumstances) the causes of ordinary vital changes in the organism. The practical inconveniences of the internal administration of carbolic acid—the most powerful member of the antiseptic group—are well known, and are exhaustively summed up by Dr. Sansom. It was these difficulties which led him to adopt the suggestion of Mr. Crookes, viz. that salts of the stable sulpho-carbolic acid, formed by the union of sulphuric and carbolic acid, and in equivalent weights, might be substituted for the acid itself. Besides the sulpho-carbolate of potash which Mr. Crookes originally produced, Dr. Sansom has prepared a variety of different sulpho-carbolates, most of which he has already introduced to the notice of the profession in various papers read before the Medical Societies; and he gives us, in the concluding thirty pages of this volume, a *résumé* of all that has been established by his own experience and that of his friends respecting their therapeutic influence. Upon the conclusions which Dr. Sansom arrives at in this direction, we have no wish to be needlessly hypercritical; and we really believe that the remedies he advocates are likely to prove of great practical value. But we cannot help saying, as a final word of caution, that he seems a little too enthusiastic. Certainly, for example, there appears to be room for a good deal of cautious scepticism about the share which the sulpho-carbolates took in the amelioration of the numerous cases of tuberculosis which obtained benefit under Dr. Sansom's hands; because he himself expressly admits that cod-liver oil and other dietetic modes of treatment were simultaneously employed.

The Dental Profession. A Letter to the Editor of a London Newspaper. By a DENTAL SURGEON. London: Hardwicke.

THOUGH it is out of our usual course to notice topics of medical politics, we cannot help calling the attention of the profession to the important remarks contained in this able pamphlet. There cannot be a doubt that the dental profession ought to be protected against the scandals produced by the performances of ignorant quacks, who often assume magnificent titles; and the public ought to be guarded against the injuries they might otherwise suffer by the legal enforcement of proper scientific qualifications analogous to those which are exacted from the medical profession. This little *brochure* is particularly well-timed, and ought to receive the careful attention both of dentists and of medical men.

Clinic of the Month.

Treatment of Ganglion.—Recent numbers of the *British Medical Journal* contain a series of reports from the principal London Hospitals on the mode in which the common affection termed ganglion is treated, and the following are amongst the more important methods that have been placed on record. Mr. Wood passes a spear-pointed needle, cutting on both edges and mounted on a handle, into the cyst, and made to transfix it again and again so as to let out the synovial contents into the areolar tissues of the surrounding fascia. The needle is then made to scarify briskly the interior of the cyst, and is used pretty freely in dividing the cyst-wall, at its opening of communication with the sheath of the tendon. Pressure is then made with both thumbs upon the tumour, so as to squeeze out completely its contents, partly into the subcutaneous areolar tissue, and partly out through the opening in the skin by which the needle entered. Iodine paint is then applied thickly over the surface, and upon it a thick pad of lint, over which firm pressure is made by a bandage. This is kept on for several days, after which the iodine paint is again applied, and the pressure readjusted. After a few applications in this way, the tumour seldom reappears; and if it do so, a repetition of the process rarely fails to succeed. No case has been met with, out of many hundreds treated, in which suppuration or any bad results have followed this plan; but several cases in which a seton had been employed have given rise to much trouble and danger from erysipelatous inflammation and abscess, followed by stiffening, and in some cases permanent impairment of the use of the limb. Mr. Henry Smith passes a single ligature thread through the cyst, and allows it to remain according to circumstances. In some instances, severe inflammation and even suppuration will be produced in forty-eight hours, and then the thread is to be withdrawn. In the majority of instances, however, especially when patients are careful not to use their hand, the seton may be retained for a period varying from three days to a week without producing any inconvenient symptoms; but so soon as suppuration takes place, Mr. Smith withdraws the thread, and the cure is almost invariable. It is necessary to bear in mind in this treatment, that, in some constitutions and

under certain conditions, the presence of the seton may produce very severe consequences; in fact, this is the only objection to the treatment. With care this rarely occurs; and there has only been one instance amongst Mr. Smith's patients at the hospital where bad results did happen. This was in the case of an unhealthy man, who applied with a ganglion as large as a crown-piece on the back of the wrist. Mr. Smith passed a seton. The patient did not apply until four days after, and in the meantime most violent inflammation and suppuration occurred. Free incisions were necessary, and the wrist joint itself was threatened for a time; but the use of a splint and careful treatment prevented any mischief. The patient, however, was compelled to remain under treatment for several weeks.—Sir H. Thompson applies, for ordinary and recently formed ganglia about the wrist, tincture of iodine for four or six weeks, usually with good effect. If they resist this, he passes carefully through the centre, with a sharp needle, a double thread of silk, ties the two ends in a knot, and squeezes the contents out of the needle opening; and leaves the thread in for three days, applying water dressing. At the end of that time, if a purulent discharge be seen, and a little inflammation have taken place, Sir Henry removes the thread and applies water dressing: as a rule there is no more trouble with the ganglion. If little or no action be produced by the tiny seton, he leaves it in a day or two longer. Sir Henry has never had occasion to regret this, but once an out-patient at the hospital, who did not attend at the end of three days, returned a week after the operation with erysipelatous inflammation of the arm. She did badly, and got some permanent stiffness of the hand in consequence.—Mr. Christopher Heath endeavours to burst the cyst by pressure, and, failing this, punctures it with a grooved needle, and applies iodine paint for a few days.—Mr. Howse finds a certain number of cases not curable by any of the above methods when the cyst-wall is thick and not capable of being replaced, or where it is situated under dense fascia, as in the palm of the hand. These are, he thinks, best and most expeditiously treated by excision of the cyst in the antiseptic mode. The usual objection to this plan of treatment is the fear of diffuse inflammation supervening. The antiseptic method, however, entirely obviates this objection, and with it said he has no fear of opening the sheaths of tendons even extensively. The practice of a considerable number of other surgeons in respect to this disease is given in this and the following number of the Journal. (*British Medical Journal*, July 8 and 15, 1871.)

Phosphate of Lime in the Sickness of Pregnancy.—Mr. Metcalfe Johnson calls attention to the phosphate of lime as a

means of relieving the sickness consequent on the pregnant condition. For some years past he has been in the habit of prescribing the simple hydrated phosphate of lime of the Pharmacopœia in doses of from three to ten grains, repeated three times a day, suspended in water, and flavoured according to the taste of the patient. He has tried the remedy dissolved in hydrochloric acid, as also the powder in the dry state, besides having had it made up into biscuits; but in none of these forms have the same agreeable results followed so frequently as when the simple hydrated phosphate has been used, suspended in water. Mr. Johnson records two cases, and states that he has often had this proof of the efficacy of the phosphates in arresting the sickness, and that patients have been sent to him for "some of that medicine that relieves the sickness." He suggests as the *ratio medendi* that the altered shape of the uterus, the altered nerve relations, the control of the ganglionic nerve to supply the new arterial system to be established, make a demand upon nervous influence which is very unusual. Nervous power cannot be expended without harm, unless the supply of nerve neuric elements makes up the deficiency. Neuric force derives much of its nutrition and source from the phosphates. Moreover, the child in its formation requires more phosphates for its new bones; and if these are supplied at the expense of brain and ganglionic nerve, it follows, as a matter of course, that debility, nervousness, and all the concurrent train of symptoms must inevitably be induced, and hence arise those feelings of depression, feverishness, and irritability so frequently associated with the pregnant state. Nor is it to be wondered at, if we consider that we take no steps to supply the new demand made upon the blood. This view of the case is again supported by pathological evidence, when we see how that fractures in pregnant females are more frequently liable to non-union. Whilst admitting the difficulty of being sure that the relief of a symptom, after the administration of a certain remedy, is due to that remedy, Mr. Johnson has been led from his observations to believe that the phosphate of lime is here really the cause of the relief so constantly expressed by the patient after its use for a few days. (*Medical Times and Gazette*, July 1, 1871.)

Citrate of Potash in Scurvy.—Mr. Palmer states that his attention has been for some time past drawn to the subject of lemon and lime juice, with the idea of finding a substitute for the horrible mixture of lemon-juice and rum with which our sailors are now drenched by Act of Parliament. As there is no virtue in citric acid, it struck him that perhaps the value of lemon-juice as a prophylactic was due to the potash it contains in combination with an organic acid, and that citrate of potash

would answer every purpose. He was further confirmed in this view by the writings of Dr. Garrod, and some experiments made with Mr. Deane of Clapham upon the salting of meat. From an analysis by Professor Attfield of some beef broth before and after salting, it appeared that the meat lost nearly fifty per cent. of its potash by the process, and that as the soda salt went in the potash salt ran out; this deficiency of potash, he thought, might probably be the cause of scurvy. Following up this idea, he then had some citrate of potash prepared; and through the interest of the Board of Trade, some experiments have been made at the "Seamen's Hospital" to test its value. These experiments have now been carried on for about twelve months; and through the kindness of Mr. Harry Leach, Mr. Palmer has obtained a report of the result. Owing to the singularly few cases admitted into the hospital during the past year, the trials have not been so numerous as could have been wished; still, in all cases it has been found equally efficacious with the juice; patients treated with citrate entering and leaving the hospital on the same day as those treated with lemon-juice. Too much stress, however, it is acknowledged by Mr. Palmer himself, must not be laid on these experiments, as there is some doubt as to which does most in promoting the cure, the lemon-juice or the extra good diet at the same time. From the above experiments, Mr. Palmer thinks the salt is well deserving of a trial; and if some large shipowner would take it up and try one against the other, during a lengthened voyage, the case might be at once decided; and if the citrate should answer the purpose, then the lemon-juice and rum might be done away with for ever. This question also involves one as to the use of light wines, such as claret and hock in gout, rheumatism, &c.; and Mr. Palmer inquires whether the virtues of these wines may not be due to the bitartrate of potash they contain. (*Pharmaceutical Journal*, July 1, 1871.)

Treatment of Uterine Hæmorrhage.—Mr. Owen of Kentucky states that during the last fifteen months he has been called upon to treat several cases of serious uterine hæmorrhage, and has derived decided benefit from the use of a remedy to him novel—namely, the ordinary preparation of arsenic, known as Fowler's Solution. The following is one of the cases he reports. He was called in haste to a pregnant woman, aged 26 years, who had been suddenly attacked with profuse uterine hæmorrhage. There had been no other premonitory symptoms than pain in the back for a few hours previous to the attack. The flow was very abundant, and with intervals of from ten to fifteen minutes; each discharge being preceded by large clots that required some effort for their expulsion. She was ordered one-quarter grain of

morphia, which was repeated in ten hours, whilst cold water was applied over the hypogastric region and injected into the vagina. At the end of four hours, the patient complained of drowsiness, but was no better. Extract of ergot and gallic acid were then prescribed to be taken in moderately strong doses every hour. On calling the following day, the hæmorrhage was still going on, though not so profusely as at first. Five drops of Fowler's Solution were then ordered three times a day, to be increased by one drop each day until ten were reached, at the same time stopping all other medication. The second day afterwards, on calling, he found his patient entirely relieved. (*Med. and Surg. Report*, June 10, 1871.)

Mode of Action of Digitalis in Dilatation of the Heart.—

Dr. Fothergill of Leeds, in the Hastings Prize Essay for 1870, remarks that it is in the condition of distension or dilatation of the heart that the advantages of the administration of digitalis are most evident. In this condition of deficiency of expulsive power the heart-walls yield. The heart is distended, and in contraction only gets rid of a little blood off the top, remaining more or less full in systole. It is more or less full before the distended auricle and veins behind pour in their contents under the increased pressure of distension. It is in the partially filled condition of the ventricle that the difficulty essentially lies. If the ventricle were not partially full, the auricle and veins would be somewhat relieved; but there is what would fill well an empty ventricle waiting to be discharged into one more or less full to begin with. The action may be moderately regular on quiet being maintained; but it is at once distended on motion, especially if this be at all active, and then palpitation and irregularity or even intermittency occurs, the regular action being again restored by quiet. There is a constant contest going on between the stimulus of the contained blood and the inhibitory action of the pneumogastric fibres. The distension excites the muscular walls to overcome the restraining influence; for without the stimulus of distension the walls could never overcome the inhibitory action of the pneumogastric, the *vis inertiae* of the blood to be driven, and action still further deranges the balance by making still greater calls on the muscular walls. The over-distension goads the organ to such a contraction as shall relieve that over distension, but only so far and no further; there is no complete contraction. An incessant play goes on between the condition of over-distension and the restraining fibres of the vagus; the balance between the muscular walls and their work remaining confessedly disturbed. In this condition the administration of a drug whose physiological action is to stimulate the sympathetic ganglia, and thus the muscular fibres under their control, into

excessive contraction, is almost the only means of restoring the equilibrium. (*British Med. Journal*, July 8, 1871.)

New Plan of dressing Wounds.—The Paris correspondent of the *Lancet* observes that the surgical novelty of the day in Paris is M. Alphonse Guérin's new plan of dressing wounds. It consists in introducing a quantity of cotton wool into the stump immediately after amputation, or on any wound whatever, surgical or accidental. The amputated limb—to take this case—is then wrapped round and round with cotton wool, quite dry and alone; a bandage is then applied, and that is all. The bandage is pressed a little tighter on following days, if necessary, so that there may be a mild compression, but the dressing remains undisturbed till the twentieth or twenty-fifth day, when on removing the packet of wadding a glassful of pus is found in the folds of the cotton, and the wound is discovered quite healed. M. Guérin, amidst the extraordinary mortality which has attended all the amputations done since the beginning of the German siege, has already obtained by this means six successful cases of amputation of the thigh out of nine, whilst all his amputations of the leg are doing well. This has created quite a sensation in Paris in the surgical wards of the hospitals, and Professor Gosselin of La Charité and M. Guyon of Necker are already experimenting with this method of their colleague of St. Louis. (*Lancet*, July 15, 1871.)

Extracts from British and Foreign Journals.

Treatment of Psoriasis by Balsam of Copaiba.—Dr. Henry Purdon, of Belfast, records the case of a patient admitted into hospital, suffering from gonorrhœa and psoriasis. As it was necessary to have the former complaint well before commencing treatment for the latter, he was ordered copaiba, and the result was, that not only the gonorrhœa, but also the psoriasis rapidly disappeared. Dr. Purdon goes on to say that, having had an unusually large number of cases under his care, he has had the opportunity of grouping together a certain number of them, and of investigating the different effects of remedies, including arsenic, carbolic acid, hypophosphate of soda, cod-liver oil, quinine, and balsam of copaiba. In some cases local treatment was also ordered. He has found, as the result of his experience in the treatment of this disease, that when *no acute symptoms* are present, large doses of balsam of copaiba, given with a little liquor potassæ, mucilage, and water, are very successful, especially in cases when it has produced extensive urticaria; indeed, the dose should be increased till the latter is established. In none of the cases has he hitherto observed the occurrence of a relapse. He thinks its mode of action may be explained by supposing that the balsam causes derangement of the stomach of a temporary character, inducing irritation that is conveyed to the solar flexus, the great centre of the sympathetic system presiding over organic life, and consequently nutrition, and thus exerts most probably a reflex influence upon the nutrition of the skin; the nerves presiding over the part or parts attacked being awakened to a state of intense excitement, as is shown by the formation of wheals, due to vaso-motor nerve spasm in the first instance, whilst the influence exercised by such local disturbance on the cutaneous nerves causes the normal processes of textural life to be improperly performed. (*Dublin Quarterly Journal*, May 1871.)

Treatment of Frostbitten Toes.—In a paper read before the Société des Sciences Médicales, M. Soulier gives the results of his observations on a number of cases that have fallen under his care. In all the patients there was complete absence of rheumatic affection. He divides the cases into three groups. In

the first of them only paralysis of the vaso-motor nerves is observable. Billroth has recorded such a case, in which the nose was frozen, and where there was a persistent and disagreeable redness of the tip. Various plans were adopted to remove the symptoms, but unsuccessfully (collodion, iodine, nitrate of silver). In similar cases affecting the feet, M. Soulier has employed tincture of belladonna as a local application with advantage. In the second degree, phlyctenulæ or blisters are present, and there may be superficial mortification of the skin. Most frequently the skin is raised by an exudation of blood. MM. Legouest and Follier recommend that the epidermis should not be detached, but the blisters should be simply pricked. M. Soulier, however, thinks the skin should be cut away, because the exudation acts as an irritant, and when it has been removed there is less pain, and cicatrisation is more rapid. In the third degree of frostbite, there is more or less extensive gangrene, and the question that arises in these cases is whether it is advisable to perform an amputation *secundum artem*, or simply to detach the mortified part at the time of demarcation. Opinions are divided upon the subject, Billroth adopting the former plan, Follin the latter. M. Soulier, in the cases he records, removed the frostbitten parts at the line of demarcation. In the discussion that followed the reading of the paper, it was shown by several speakers that it is unadvisable to perform a regular amputation, but that the detachment of the dead parts should be postponed as long as possible, very good results being obtained in most instances. (*Lyon Médical*, May 14, 1871.)

Extract of Conium in Inflammation of the Breast.—M. Altstadter, of Pesth, strongly recommends small doses of extract of conium, repeated several times in the course of the day, for the resolution of inflammation of the breast, arising from stasis of the milk in puerperal women, and reports several cases in which striking advantage was obtained from its use. In all instances care should be taken to obtain as pure and active a specimen of the drug as possible. (*Wiener Med. Presse*, No. 12, 1871.)

The Electric Bath in Mercurial Trembling and in Alcoholic Tremor.—M. Camille Chapot-Duvert describes his apparatus in the following terms:—It consists of a pair of Bunsen's elements of medium size and a coil of one large wire connected with a copper regulator, which augments and diminishes the force of the apparatus by covering or uncovering a larger or smaller portion of the core, which serves to interrupt the current by means of a vibrator. At each interruption the *extra current* disperses itself through the water. The positive pole, formed of a large fragment of charcoal, corresponds to the pedal, and the

negative, formed of a plate of zinc, to the cephalic extremity. Mercurial tremor, he remarks, is one of the most frequent manifestations of mercurial intoxication. Without causing any apprehension in respect to the life of the sufferer, it is a troublesome symptom for the workman who is obliged to gain his livelihood by the labour of his hands. The progress of the disease is slow, and it recurs frequently if the individual be exposed anew to the original cause of the affection. The measures usually employed consist in sudorifics, vapour and sulphur baths. Opium has also been recommended, but the treatment has always been excessively protracted, and has often proved unsuccessful. No observations have hitherto been made on this subject, except that M. Axenfeld in 1870 remarked that electric baths might prove of service, especially in mercurial poisoning, by aiding the elimination of the metal. M. Chapot-Duvert proceeds to relate the histories of five cases, in all of which good results were obtained by the application of this novel method of treatment. The following is a *résumé* of one of them:—A mirror maker, aged 26, applied on the 12th of January, 1870, at the Hôpital St. Louis; brought up as an agriculturist, he had been five years at the trade; soon after commencing to work at it, he had the usual symptoms of mercurialism, but these were removed by treatment, and he remained well for two years. He then suffered a relapse, and was again cured. He was abstemious in regard to drink, and went on tolerably well to December 1869. Then debility was experienced, followed by gradually increasing tremor, for the relief of which he applied. The trembling was marked in both pairs of extremities, sensibility was intact, the muscular force was considerable. He was placed in the electric bath, and remained in it for twenty minutes, and this was repeated daily for seven days. Great improvement in the power of walking was experienced, and he could use his right hand to eat with. After twelve days' baths, the improvement was still more marked; he could run with facility and walk with an assured step, though on his admission he was so weak he could scarcely stand upright. After twenty baths he was perfectly well. M. Chapot-Duvert states that he has had equal success with the remedy in cases of alcoholic tremor. He was unable to discover that any traces of the metal in the former cases were discharged either by the urine or on the zinc plate. (*Bulletin Général de Thérapeutique*, June 15, 1871.)—In connection with this subject, Dr. Ainslie Hollis, in the department of Clinical Memoranda of the *British Medical Journal* for July 1, 1871, asks whether mercurial tremors can exist with chronic lead-poisoning. He relates a case in which the patient was a looking-glass silverer, poorly nourished, who was suffering from severe muscular tremors, especially of the upper extremities (so that he was unable to

feed himself), together with ptyalism, sponginess of the gums, &c. Along the edge of the gums around the incisors of both jaws was a very distinct blue line, and in association with this phenomenon he had colicky pains, though the bowels were not greatly confined. He was treated with three-grain doses of the iodide of potassium three times daily, and was ordered to abstain from his employment. The symptoms of mercurial poisoning rapidly disappeared, but the blue line on the gums and the partial paralysis of the extensors of the forearm remained. In Dr. Hollis's inquiries concerning the nature of his employment, he elicited the fact that the tinfoil used in silvering contains a considerable percentage of lead in its composition. From these symptoms Dr. Hollis concludes that in this, and in another case that he records, the two poisons were simultaneously affecting the system, and consequently we must rather ascribe the blue gum line to the lead than to the mercury, although the black sulphide of the latter metal might theoretically be supposed to give rise to such an appearance.

Gonorrhœal Metritis.—Dr. Mulreany calls attention to a peculiar form of inflammation of the uterus accompanying gonorrhœa. It occurs amongst those who have had one or more pregnancies. It succeeds either a recent or a chronic clap indifferently, but invariably commences directly after a menstrual period or an early miscarriage. The attack sets in suddenly, generally in the night, and either at the termination of a menstrual flux or a day or two after an early miscarriage. There is no difficulty in the diagnosis, as the uterus is the seat of pain, which is almost limited to that organ; the peritoneum is singularly free from complication, and the bladder is rarely affected. The pain is moderately severe, but is unaccompanied by either constipation or tympanitis; the febrile symptoms are moderate. The great peculiarity is the sudden enlargement of the organ, which feels dense and distended, but without elasticity, and may attain the size of an orange or of a child's head in from four to six days. On examination the os is rather patulous, and, together with the cervix, is tumid, hard, nodulated, and misshapen, almost giving the appearance and feel of cancer. There is always more or less bloody discharge. Gonorrhœal metritis, if not cut short at the very beginning, generally runs a course of from three to six weeks, when the uterus resumes its healthy shape and functions, the gonorrhœa either having been cured or having exhausted itself. This is fortunately a frequent termination; but in some cases a chronic discharge, varying in colour and consistence, may continue to flow from the interior of the uterus for several years. During his early acquaintance with the disease, Dr. Mulreany treated it on general principles—leeches, fomentations, turpentine,

stupes and poultices, calomel and opium, &c.—looking upon it as an idiopathic inflammation, with the prospect of peritonitis, adhesion, &c. Having, however, as he believes, recognised the proximate cause and pathology of the affection, he has put aside this plan, and has treated it pretty much as he does acute rheumatism of the joints, and with as little apprehension of the result. He prescribes at the outset dry heat to the abdomen, and internally a combination of the alkaline carbonates, iodide of potassium, and opium, in large and repeated doses. Sometimes he gives a dose of calomel if he notices a bilious tint of the skin or breath; leeches are rarely necessary, and at this stage he never uses injections. Within a few hours marked relief is obtained. The opium relieves the pain, and the beneficial action of the alkalies on the blood in this, as in many acute inflammatory affections, is most marked. He gives no alcoholic stimulants, and restricts the patient to a purely milk diet. If the bowels do not act for three or four days, so much the better, as by that means the inflamed and enlarged uterus is neither pinched nor disturbed by excessive peristaltic movement: they of themselves, however, act about the fourth day; if not, a dose of sol. potass. tart. and rhubarb is sufficient. When the patient is much lowered by suffering, want of treatment, or it may be injudicious treatment, the above system of procedure must be somewhat modified. Quinine may be added to some such mixture as the following:—Potass. bicarb. $\bar{3}j$, potass. nitrat. $\bar{3}j$, sp. ammon. aromat. $\bar{5}vj$, potass. iodid. $\bar{3}j$, syrup. zingiberis $\bar{3}j$, aquæ ad $\bar{3}vj$; misce. One tablespoonful for a dose. A blister may be applied to the abdomen just over the fundus uteri; and if the heart's action be very weak, small and repeated doses of whisky may be given till sufficient reaction has been established, when it is at once to be omitted, as he has found that alcohol in any shape increases the blennorrhœal discharge. Under this plan of treatment all his cases, when the disease has been recent, have rapidly improved, the patients having only had to use an injection of the chloride of zinc for a few weeks:— \mathcal{R} Zinci chloridi $\bar{3}j$, acid. muriatici diluti $\mathcal{M}xxiv$, aquæ $\bar{3}xxxiv$; ft. injectio. A wineglassful to be injected with a long, narrow gutta-percha syringe twice a day. The chronic form is more difficult to treat, and the measures adopted must vary with the circumstances of the case. (*American (New York) Medical Gazette*, vol. vi. No. 8, 1871.)

The Laws of Localisation in Chronic Centric Neuroses.—In a late meeting of the Medical Union of Vienna, Prof. Benedikt made an interesting speech upon this subject. He proceeded from the law of Bell to the effect that in any given case “we must observe the sum of all the affected nerve-fibres,

and locate the disease at the point where these fibres are placed in anatomical juxtaposition." By the aid of this law above every other we are enabled to distinguish between true neuroses from apparent peripheric neuroses. But in addition, by the aid of physiological and pathological anatomy, he has been able to establish a number of special localisation laws, which he thus formularises:—1. Paraplegia developing itself coincidently and symmetrically, indicates disease of the anterior half of the medulla spinalis, or of its sheaths. It is very exceptional for a spinal paraplegia of the legs or arms to result from two hemiplegias. As a rule, paraplegia of the legs indicates disease of the lumbar; of the arms, disease of the cervical enlargement. Paraplegia, from disease of the vertebral column, is characterised by the primary disease of the roots at the seat of lesion, especially of the posterior roots, which long remain in the state of excitation termed *paraplégie douloureuse*. 2. Cerebral paraplegiæ obviously arise from two clearly distinct hemiplegiæ. Exceptions in cases of disease of the medulla oblongata are very rare. 3. Characteristic tabetic symptoms indicate disease of the posterior half of the medulla spinalis. 4. Progressive muscular atrophy indicates disease of the grey substances of the spinal cord in the vicinity of the central canal, or diffused disease of the anterior roots. The occurrence of atrophy of the extremities has the same relations in regard to the complex of spinal symptoms. 5. Hemiplegia with crossed hemi-anæsthesia indicates disease of one-half of the spinal cord. The hyperæsthesia, which occurs on the side of the paralysis, is probably occasioned by paralysis of the vaso-motor nerves of the damaged side. 6. Bilateral tabetiform neuralgia of the legs or arms indicates a central neurosis disease of the posterior roots, and of their central prolongation. 7. Progressive paralysis of the cerebral nerves indicates more or less diffused disease of the nuclear region of the medulla oblongata, as far up as the crus cerebri, or diffused disease of the peripheric radiations of these nuclei. 8. Paraplegia of the tongue (Alalia), and its incipient stages, and also pharyngeal paralysis (*Schlingslähmung*) indicates disease at the level of the hypoglossal and glossopharyngeal nuclei. 9. Hemiplegia with crossed paralysis of the facial or oculo-motorius indicates disease of the fibrillar structure of the pyramids at the level of the nuclei in question, or of the point of emergence of these nerves. 10. Hemiplegia with coincident hemi-anæsthesia indicates disease of the fibrillar structure at that level of the medulla oblongata at which the decussation of the sensory fibres is completed, as far as and (inclusive of the radiation of the moist external fasciculi from the crista of the crus cerebri) into the medullary mass of the hemispheres behind the lenticular nucleus (*corpus striatum externum*). Exclusive hemi-anæsthesia,

or hemi-anæsthesia greatly exceeding in degree the hemiplegia present, is especially to be referred to the latter point.

11. Hemiplegia with incomplete paralysis of the facial (freedom of the upper branches) indicates disease of the central motor ganglia. Electrical research, especially establishing a decussated reflex action, is of importance, as showing the localisation of the paralysis within the peduncle of the brain and the central ganglia.

12. Hemiplegia with convulsions indicates disease of the cerebral hemispheres centred to the central ganglia. The more prominently marked are the convulsions, the nearer to the cortex must be the disease referred to. Complications with aphasia (comprehension of speech being preserved) indicate the seat of the disease to be in the frontal lobes, near the convolutions of the insula. Complications with neuro-retinitis bilateralis indicate the lesion to be in the optic thalamus. Convulsions frequently fail in disease of the hemisphere with hemiplegia, which is to be referred to the circumstance that, on the one hand, with the occurrence of disease (for example acute softening) hydrocephalus coincidently appears, and thus, through pressure on the central ganglia, renders irritation impossible; or, on the other hand, the pathological alteration (for example neoplasia) first produces symptoms when its mechanical pressure reaches the central ganglia.

13. The most essential motor symptoms in uncomplicated disease of the cerebral walls are convulsions, and paralysis never occurs without previous convulsions. Psychological disturbance invariably indicates primary or secondary disease of the brain. Static vertigo, *i. e.* rotation on the side, indicates cerebellar disease, but this may affect the fasciculi of the cerebellum radiating into the brain. Contractions, caused by centric disease, may be either spinal or cerebral in their origin: the former are usually bilateral, the latter unilateral; the former usually affect the extensors, the latter the flexors. Spinal contractions never occur without symptoms of abnormal reflex action, called forth and augmented by sensorial influences. Cerebral contractions are likewise the product of sensorial excitation, as they usually cease during sleep. Contractions, therefore, are probably no independent motor symptom, but originate from sensible and sensorial reflex excitation. Shaking convulsion (*Schüttelkrampf*) is a symptom characterised by the rhythmic contraction of antagonistic groups of muscles, with wider excursions than in tremor. It may be a spinal symptom, as is seen in the so-called spinal epilepsy. Sensory excitations powerfully influence it; and complications with contractions of extensor muscles are common. There is, undoubtedly, however, also a form of this affection of cerebral origin, shown especially by its being associated often with hemiparesis. At present it is not certain that this condition is identical with

paralysis agitans. 14. Shaking convulsion, therefore, cannot be localised in any particular point, as, for instance, in the central motor ganglia. Sclerosis lies at the root of this condition. 15. The influence of sensory excitation on motor phenomenon depending on excitation (*motorisches Reizungs-phänomenon*), by no means proves its localisation in the brain. 16. Centrally conditioned motor phenomena of excitation are essentially occasioned by the excitation, or at least with the co-operation, of sensitive and sensorial fibres. Lastly, if a combination of symptoms with known and different localisation be present, each symptom requires to be referred to its proper seat. This statement of the Professor is so simple, that it would almost appear to have been stated before, though this is not the case. But the histories of diffused sclerotic, of dementia paralytica, of chorea minor, &c., even in very recent works, show how little authors are conscious of its truth; and the lesions accompanying these affections he proceeds to describe, with a polemic on the views of various authors, at greater length than we have space to give. (*Wiener Medizinische Presse*, July 2, 1871.)

Carbolic Acid in Ague.—M. Treulich states that obstinate cases of intermittent fever, which are not in any way benefited by quinine, can be rapidly and permanently cured by the administration of carbolic acid, without any disagreeable consequences. The average dose amounted to four grains and a fraction. The acid was given in an infusion of gentian. The author records no less than eight cases, which were associated with large tumours of the spleen and resisted the action of quinine, but were speedily cured by carbolic acid. This experiment supports the view that malarial fever is essentially a parasitic blood-poisoning. (*Ibid.* Nov. 12, 1871.)

Dactylitis Syphilitica.—Dr. R. W. Taylor, in the *American Journal of Syphilography and Dermatology*, of January last, gives a good account of this form of disease, which has been republished by Christern, of New York, as a separate pamphlet. In this paper the author remarks that the tegumentary structures of the fingers and toes are frequently the seat of various syphilitic lesions, both in the secondary and tertiary periods, those appearing in the latter period being never limited to the digits alone, but being coincident with or following similar affections of the palms or the soles, when they appear as extensions of disease on the plantar or palmar surfaces,—a peculiar thickening of the epidermis, with more or less copious exfoliation, which may or may not involve the nails; whereas, when they are continuous with disease of the dorsal surface, there is a thickening of the whole structure of the derma, with very little, if any, affection of the epidermis. The former lesion is known as

palmar and plantar psoriasis, and the latter as a non-ulcerating tubercular syphilide. The disease in question, however, named *dactylitis syphilitica*, is a peculiar and rare manifestation of syphilis in the deeper structures of the fingers and toes. This affection consists in the deposit of the peculiar gummy material of tertiary syphilis in one or all of the deep tissues, and is characterised by peculiar deformities. An analysis of the recorded cases, which are few in number, shows that they may be divided into two classes: first, that in which the subcutaneous connective tissue, as well as the fibrous structures of the articulations and phalanges, are involved; second, that in which the morbid processes begin in the periosteum and bones, and secondarily implicate the joints, and may or may not be accompanied by deposit in the subcutaneous connective tissue. Really, however, these are only stages of the progress of the lesion, and not different varieties of it. The whole digit, or one phalanx, becomes considerably enlarged, the integument assumes a violet colour, its surface markings and articular furrows are effaced; it can only with difficulty be pinched between the fingers, and it may be so very tense that it can scarcely be moved over the parts beneath. Crepitation on moving the joints is generally perceptible. As regards diagnosis, the subcutaneous variety might, in its early stage, be mistaken for whitlow, but in the absence of acute inflammatory symptoms pain especially would prevent confusion. When the lesion occurs in the great toe, it might be regarded as gout, but here again the absence of acute invasion and pain would soon point out the error. From rheumatoid arthritis it is distinguished by the fact that there is generally a history or concomitant symptoms of syphilis. The swelling does not usually involve so many joints, is mostly observed upon the dorsal surface, rarely if ever upon the palmar, or in the sheaths of the flexor tendons; it is at first subcutaneous, and the joint lesion is usually discovered afterwards; and the crepitation, which is not heard early, is of a softer character. Enchondroma, with which it might be mistaken, involves generally one, and especially the palmar surface of the bone increases very slowly, and presents a hard, well-defined tumour. The same applies to exostosis. From periostitis it is known by its comparative painlessness, its subacute course, and perhaps by the coincidence of syphilitic lesions of the larger joints with their well-marked symptoms, or the presence of tegumentary lesions of syphilis upon the body. The tendency of the so-called strumous inflammation to localise itself in bone rich in cancellous tissue, particularly those of the carpus and tarsus, and the expanded extremities of the long bones, renders it probable that it rarely, if ever, attacks the phalanges. The prognosis is generally good. The treatment is that of late syphilis, the use of

iodide of potassium, either alone or combined with a mercurial. When the parts are very much distended, a minute incision may be necessary. (*Pamphlet*, 1871.)

On the Purgative Principle of Senna.—MM. Bouchut and Bourgeois have recently been investigating the nature of the purgative principle of senna, and have arrived at the conclusion that this drug cannot be ranged in the series of plants that possess only a single active principle. The substances they have found are—
1. Mucilaginous matter. 2. Extractive fluid. 3. Cathartine of Lassaigne and Feneulle. 4. A new substance, catharto-mannite. 5. Cathartic acid. 6. Chrysophanic acid. From their experiments they find that the mucilaginous matter scarcely purges at all, and in half the cases produces no effects. The fluid extractive, containing all the active principles, purges very well, and occasions numerous liquid, yellow evacuations. Cathartine also causes sufficiently numerous evacuations, but the purgative effect is less marked than in the case of the liquid extractive. The new matter (catharto-mannite) appears, on the contrary, to produce constipation. Cathartic acid purges slightly; it exerts an action much less energetic than the extractive liquid and cathartine. Finally, the chrysophanic acid appears also to possess purgative properties, though only slight, as a large dose is required. They add, as a general consequence of their work, that the best preparation of senna is the infusion with or without the mucilaginous matter, as, for example, that preparation they have termed “fluid extract.”—*Bulletin Général Thérapeutique*, tome lxxx. livr. 1.

Notes and Queries.

CORRESPONDENCE.

COD-LIVER OIL JELLY.—We have received the following letter from Mr. Agnew, the maker of this article :—

“My attention having been drawn to an article in your June number, showing the results of an analysis of my cod-liver oil jelly, and as those remarks, if allowed to go uncorrected, are calculated to injure my reputation as a manufacturer of a medicine, specially intended for the benefit of the medical profession, it was my intention to have sent a reply in time for your July issue, but was unavoidably prevented until after your correspondence column was closed. However, I feel assured that you will now gladly afford me an opportunity of neutralizing any prejudicial effects which may have arisen from your damaging critiques which appeared in your June and July numbers.

“Although I have admitted that a slight error on my part had arisen in previous manufactures from a miscalculation, that error was, as I have stated, *slight*, and could not possibly have made more than 5 per cent. difference in the quantity of oil, instead of 20 per cent. which your results show; and after I had adopted a method of manufacture by which the minimum proportion of oil could not be less than 70 per cent., I submitted a sample to Dr. Attfield for analysis. The following is his report :—‘The last sample of cod-liver oil jelly you forwarded contains 51 per cent. of oil by weight. The specific gravity of the oil is .923, and the specific gravity of the jelly is 1.037; hence 100 volumes of “jelly” contain 57 volumes of oil.’

“Wondering what could have become of the remainder of the oil, the idea occurred to me to manufacture another batch, and to send samples from it to five analysts, including the Professor, and here are the results :—

- | | | | | |
|----|-------|---------------|------|------------------------------------|
| A. | 59.28 | oil by weight | 66.5 | oil by volume. |
| B. | 62 | “ “ | 75 | “ “ |
| C. | 70 | “ “ | | or three-fourths by volume. |
| D. | — | “ “ | 72 | but satisfied that it contains 75. |
| E. | 51.56 | “ “ | | Does not give the volume. |

"Now add the results of your analyst to the above, and it will look ridiculous. I will make no comments on the wide discrepancies as shown by the above; but will, as you say, 'leave the professions, manufacturers, and analysts to draw their own conclusions.'

"Seeing, from a further analysis, published in your July issue, that your analyst still shows a deficiency of from 15 to 16 per cent., and as you do not give his method of procedure in arriving at such a discrepancy, I am led to believe that he has not analysed the jelly, but simply based his results on the specific gravities of the oil and of the jelly. How trustworthy is this calculation, the profession may judge from the fact that your analyst has no knowledge of how I manufacture the jelly. Nor does he know the specific gravity of the solution before the oil is added to it. Without this knowledge his results would be valueless, since the specific gravity of the solution may vary in every batch: accordingly as the heat is applied more or less, so there must result a greater or less degree of density; hence the specific gravity of the 'jelly' is no criterion as to the amount of oil it should contain. You also assert that the jelly, if 'made according to declaration,' ought to about 'float in water.' Now, as you say, the jelly sent out by me from the beginning has been deficient in quantity of oil, so you could not have had a sample of the 'Standard' jelly to judge by, and must have arrived at your conclusion from calculation which I consider to be as fallacious as it is absurd.

"In concluding, allow me to assure you that every jar of jelly sent out by me contains not less than 70 per cent. of pure cod-liver oil, and should you have any doubt on this point, I am willing that you delegate three medical gentlemen from the Medical Society here, who shall witness a sample of jelly made with a given percentage of oil, which they shall submit to your analyst for analysis; and should he fail to give the proper percentage of oil it contains, he forfeits the sum of £20, to be equally divided between two medical charities—one here, and one in London.

"I submit for your inspection the original certificates of the five experiments, which you will please to return to me at your convenience."

[We cannot congratulate Mr. Agnew either on the matter or the manner of his defence. As regards the latter, we can only characterise as sheer impertinence the suggestion that our chemist had not really analysed the jelly, but had trusted to a mere calculation from the specific gravity; since in both our series of analyses we distinctly specified the proportion of the sugar as well as of the oil, and we have reason to know that Mr. Agnew's own analyst, Dr. Attfield, had informed him that our first series

of analyses were made by a most competent authority in practical chemistry, who had called his (Dr. Attfield's) attention to their results, which results were thereupon substantially verified by Dr. Attfield's fresh experiments upon samples of the jelly actually in the market. This much Mr. Agnew, to our certain knowledge, was distinctly aware of; and if he had taken the trouble to inquire further from Dr. Attfield, that gentleman could have informed him that our analyst fully described to him, in private, the processes of analysis that he had employed, which were of a complete and exhaustive character as regards the chemical estimation both of the oil and the sugar. It is therefore simply absurd to maintain that the error existing in the samples examined in our first series "could" only have been a "slight" one; it was, on the contrary, an exceedingly large one—a mistake between two spoonfuls and three. As to our second series of analyses, they were performed by the same chemist, and in precisely the same manner, as the first series; and were made on samples *newly supplied* from the factory to two of the same agents from whom the first samples were purchased. Their results may therefore be relied on as absolutely correct, and as showing that two most respectable London agents of Mr. Agnew were still being supplied with jelly that was deficient in oil to the extent of 15 to 20 per cent. So much for the gratuitous suggestion of carelessness and inaccuracy on the part of our analyst, an insinuation which, under the circumstances, is little creditable to Mr. Agnew who makes it. But further, even had our analyst relied, which he did not, solely on the fact that the jelly actually in the market was so heavy as to require a syrup of $\bar{3}j$ sugar to $\bar{3}iv$ water to float it, he would have been fully justified in saying that such jelly could not possibly have been made correctly after the formula given by Mr. Agnew; viz., 75 per cent. oil, 10 per cent. sugar, 10 per cent. water, and 5 per cent. gelatine, acids, &c. No possible variation of the heating processes could have brought about such a result.

As to Mr. Agnew's substantive rebutting proofs, they are of no value whatever as against our analyses. We might object altogether, *in limine*, to admit the relevancy of analyses made on samples specially supplied by the maker as against our own experiments made on samples actually sold by highly respectable London agents. But what do Mr. Agnew's new analyses actually show? They were made by five different analysts, on a batch of the jelly which Mr. Agnew states to be so made that the minimum proportion of oil *could* not be less than 70 per cent.; but these gentlemen return the following highly discrepant reports:—A puts the proportion of oil at 59.28, B puts it at 62, C puts it at 70, E puts it at 51.56 per cent. by weight; D does not give the weight per cent., but says there were 72 to 75

volumes per cent. Now Mr. Agnew has sent us the original reports of these five analysts, and we note the singular fact that (besides the above remarkable discrepancy) the only one of these documents that specifies the amount of any other ingredient except the oil is E, and that report (presumably the most careful and accurate) gives a weight of oil per cent. *which exactly corresponds with the mean of our own analyses of the second series!* Further comment appears quite unnecessary: but we were considerably amused, after this, to read Mr. Agnew's naïve challenge to us to put our own analyst through a kind of ordeal, that he may purge himself from the suspicion of analytical incompetency, under penalties if he fail to clear himself in the eyes of three select Liverpool doctors. With the highest veneration for the chemical science of the profession in Liverpool, we respectfully, but firmly, decline the offer, and close this discussion as far as our columns are concerned.—ED. PRACT.]

GELSEMIUM.—“M.D. Lond.” will find, in the *New York Medical Journal* for June, a list of references to the most recent papers on the action of this medicine. The most important article was that of Dr. Roberts Bartholow, in the *Practitioner* for October 1870.

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¹ Any of the foreign works may be procured by application to Williams and Norgate, of Henrietta Street, Covent Garden, W.C.; or to Messrs. Dulau, of Soho Square, W.C.

THE PRACTITIONER.

SEPTEMBER, 1871.

Original Communications.

SOME POINTS OF SURGICAL PRACTICE DURING THE SIEGE OF PARIS.

BY DR. LÉON LABBÉ,

Surgeon to St. Antoine Hospital.

It is almost superfluous to mention, that during the siege of Paris wounds were of exceptional gravity, and, indeed, it was admitted even by older surgeons who had had much experience in former wars, that the wounds they witnessed during the siege were of unexampled and unprecedented fatality. In consequence, most strenuous exertions were made by the Paris surgeons, and were much insisted on by myself, in the direction of conservative surgery. This I specially worked out in wounds which engaged the bones, and particularly the femur. Now in these cases I had observed a violent contusion of the marrow extending very high up; and as in several instances I had been able to detect this lesion immediately after the wound had been inflicted, and before symptoms of reaction had set in, it was obvious to me that this marked injury was of immediate origin. At the same time that there existed this considerable injury of the bone marrow, the bones themselves presented the most serious lesions: there was splitting and splintering of the bone,

extending as high up as the great trochanter, for instance, in cases of fractured femur.

The embarrassment of the surgeon may easily be understood with such cases before him. It seemed more than daring to resort to proceedings of conservative surgery, and amputation was at the beginning universally employed. The results were disastrous, the mortality was absolute and general; and these consequences obtained, not only in Paris, but on the Loire, at Vendôme and elsewhere, wherever in fact the war was being carried on, so that we were brought to the conclusion that the extraordinary lesions which we detected, and the fatality which attended them, were due to the use of the conical-shaped bullet.

Well, in cases of wounds by fire-arms to the thigh, when complicated by fracture, I lay down as an absolute rule that amputation and disarticulation were to be formally discarded. I need not say that this equally applied to the other extremities when marked injury was exhibited, and I remember a case of fracture of the tibia, in which the bullet had penetrated altogether into the upper extremity, and in which the bone was splintered to the ankle with considerable laceration of the fleshy parts immediate and contusion of the marrow. The splinters which were drawn out of the wound sometimes measured 10, 15, and 20 centimetres.

Disarticulation, which at all times is a detestable operation, was now a worse than formidable one, because it was necessary to take into account the bad condition of the food, the atmosphere, and other hygienic conditions. Above all I dreaded the peculiar character of the lesion, with its exceptional extent and gravity. What, then, was to be done, if neither disarticulation nor amputation was to be employed? After much perplexity, and some search, I adopted two manners of proceeding. They, of course, were by no means uniformly successful, but there were successful cases; and in several instances I was happy enough to save the life of the patient and his limb besides, when both were infallibly doomed to destruction had the knife been employed.

In cases where the bullet had penetrated, for example, into the upper fourth of the femur, or near its reunion with the lower three-fourths, it is not doubtful that the only operation which

presents itself to the mind is disarticulation. But on no consideration would I have employed this operation. In all the cases, therefore, I have mentioned, I attempted either to preserve the limb or to make partial dissection if possible. In the first instance, I avoided all immediate operation, waiting for events, surveying with attentive care the progress of the wound, but the express condition of this mode of proceeding was to place the limb in absolute straightness, in absolute immoveability. These two conditions I realised by means of plastered splints, obtained by thick overfolds of muslin steeped in plaster of Paris. From the time when the patient was placed in these conditions he immediately experienced considerable comfort. Rest and sleep became possible. There was less inflammation; and, as I had left open spaces in the appliance, the dressings were made and renewed under the eyes of the surgeon, who could watch for the moment when it became necessary to extract the splinters. This proceeding was equally applicable to wounds on the upper limbs. It afforded considerable comfort to the patient, was attended by less reaction, and afforded success in many cases where amputation seemed at first to be completely indispensable.

The other mode of proceeding which I adopted was the following:—In many cases the patient was left in absolute rest for a few days; experience has shown that when the repose was absolute during the first fifteen or eighteen days, the phenomena of reaction were almost null, so that after I had formed a very grave prognostic, things would seem to be going on extremely well, and the patient's friends, comforted and reassured, were tempted to joke the surgeon. But after this lapse of time, purulent masses, of more or less extent, began to form around the principal centre of fracture and in the depth of the limb. It was then that I intervened by means of large and deep incisions, opening up the abscesses, and drawing out all the moveable splinters, &c. When all these had been extracted, by means of the *chain saw*, the portions of bone were resected (*formant biseau*), and in such a way as to obtain, as perfectly as possible, even surfaces, which were brought together without the employment of any suture. But in these cases it was also absolutely indispensable to obtain complete immobility by the use of the plastered

splints already alluded to. Without the employment of this appliance no good results would have been obtained. Among the successful cases due to this mode of treatment, there was a very remarkable one, in which the injury had been most considerable. I was obliged to take away fifteen centimetres of bone, and necessarily there was a marked shortening of the limb ; but the patient preserved his life, and the use of the extremity besides. Nine months have elapsed since his recovery, and he will not yet venture to undertake walking, but there is no doubt that by means of a prothetic apparatus, and a light iron bar rendering the thigh immoveable, he will make good use of his leg, as consolidation is perfect. I am also able to record a very successful case of consolidation of the humerus after a similar treatment. The arm is perfectly safe, though its movement will be necessarily limited.

To sum up, all the exertions made by the Paris surgeons during the siege, in the direction of conservative surgery, have been undeniably and by far superior in their results to those obtained by amputations, disarticulations, or an otherwise liberal use of the knife. I must say that great success seems to have been due to the employment of the plastered splints which I used, inasmuch as they secured perfect immobility of the limb, whilst they allowed the whole progress of the wound to take place under the eyes of the surgeon, who could thus intervene at the proper moment.

Before concluding these notes touching the surgical aspects of the siege, as far as my own practice is concerned, I may just state that the employment of continued irrigation, especially during the latter period of the war, has rendered me inestimable services. I must say that in wounds of the extremities, as in crushing of the corpus, wrist, &c., no other procedure whatever gave me any results to be compared with those which I obtained by means of the irrigating process ; but it must immediately be added that to secure these favourable consequences irrigation must be applied according to a most formal and determined set of rules. Thus only tepid water at eighteen degrees (centigrade) must be employed, and invariably at the same degree of warmth. Again, I have found that the application of irrigation, according to Langenbeck's method,—that is to say, in the shape of baths con-

tained in gutta-percha bags,—is an awkward and untrustworthy proceeding. Irrigation must be applied in the open air, and in a continuous current. Then irrigation must be carried on with absolute persistence. Doubtless there are difficulties in the realising of this plan in private practice, and the friends of the patient are but too much inclined to shirk the uniform severity of this feature of the proceeding. But the surgeon may attain his end by explaining to them the absolute necessity of observing this rule of practice, if they wish to save the patient's life. I have myself continued the irrigating for so long a time, that the tissues of the hand seemed to have changed their character, and the layer of cellular tissue assumed the appearance and the toughness of sclerema. But these phenomena disappeared very speedily as soon as the irrigation was stopped. It is needful to observe that the irrigation must be done away with very gradually. Thus I used to suspend it for two hours at first, then for three, and so on progressively. As an instance of the persistency of treatment in cases of crushing of the bones of the hands, the procedure was made to last over forty-five days. I was thus enabled to preserve the use of many hands to my patients, and may just observe in concluding, that a frequent case of crushing wound of the hand was due to a bullet penetrating into the palm and causing a radiating wound, like a star, in which it would seem that the wrist and fingers only remained hanging around with some remains of vitality.

THE BODILY SYMPTOMS OF INSANITY: THE IMPORTANCE OF OBSERVING AND TREATING THEM.

BY T. S. CLOUSTON, M.D.,

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(*Concluded from p. 24.*)

Derangements of the Digestive Organs.—Of all the bodily symptoms of insanity, disorders of the organs of digestion were the most frequent in the 100 cases I have referred to. They existed, as we have seen, in one-third of them. Instead of being regarded as the chief causes of insanity, as they have been from the time of the Father of Medicine, they are now being generally recognised more and more as part of its effects, in most cases. But this is not so fully set forth by anyone as, I believe, it should be. Even when dyspepsia and constipation precede the mental aberration, it by no means follows that they have been in any other way its cause than that, being a part of the general nervous debility, they happened to attract special attention first, and by their existence aggravated and brought out the other latent neuroses. It is certainly wonderful how the old authors, to whom nothing was known of the functions of the liver, and still less of those of the brain, framed theories of causation between the two unknowns, explaining the whole matter by hypotheses as baseless as the “fabric of a dream.”

The chief derangements of the digestive apparatus in the thirty-six cases in which they occurred, were various states of furring, bareness and dryness of the tongue, want of proper taste in the mouth and relish and enjoyment in taking food, difficulty of digestion, constipation of the bowels, and pain or uneasiness in the epigastric region. What made all those symptoms so

evidently seem a part of the insanity was their following closely, in intensity, the intensity of the mental symptoms, disappearing when they did, coming back again when they returned, and altogether showing themselves as a part of the disease.

The state of one man's tongue indicated most accurately the amount of sleep that had been got through the night. Another had slight looseness of his bowels during the excitement; they became normal as the excitement was passing off, and then were most exceedingly costive when a period of mental depression came on, and all this in the course of a few weeks. Then it was most evident that in most cases therapeutic means directed to remedy those abnormal states of digestion did no good whatever, if they did not do harm, while the brain excitement lasted. All the rules that would be ordinarily followed as to giving or abstaining from nourishment too, if the state of the digestive organs alone had been taken into account, were completely set at naught, and the one object sought to be obtained was to get as much food digested and assimilated as possible. To be deterred from giving suitable food and often repeating it, by a loaded tongue or a dry one, was not dreamed of, anything more than just sufficient castor-oil to empty the lower gut in the most obstinate constipation was not thought of, and quinine and iron were given, in the majority of cases however much the face might be flushed, or however much blood there might apparently be in the head. Dr. Blandford, the latest systematic writer on insanity, is very strong on the food question in recent mental disorders.¹ He expresses in an emphatic manner what had come to be known empirically to most persons who had had many such cases to treat. But I think he goes too far when he says, "Never give mere liquids when you can get down solids." The symptoms I have mentioned unquestionably indicate interference with the digestive function, and we must not forget the ordinary laws that regulate this function. I have repeatedly found the stomach and bowels of a patient who had been excited before death, gorged with undigested solid matters that had been taken many hours previously. A few months ago I had an epileptic violently excited, who took a dinner of beef, potatoes, bread, and milk, at twelve o'clock noon, supper of bread

¹ *Insanity and its Treatment*, p. 192.

and tea at six o'clock P.M., and died in a fit at three o'clock next morning. I found on examining the contents of the stomach that most of the bread and milk was digested, but the beef and part of the potatoes were still in the stomach little changed. Now it is not to be supposed that this would have been the case if the woman had been in an ordinary state after eating her ordinary dinner. The nervous derangement had not been confined to the mere brain excitement; it consisted in part of impaired digestive power, and that not by any stoppage of the flow of the gastric juice which must have been there to have digested the bread and milk, but no doubt its quality was altered. The woman's tongue had been furred on the day of her excitement. I think we should give nourishment as often as Dr. Blandford urges, but we should be most careful as to the sort of food. There would in my mind be no sort of question, if I could give a recent case of insanity the same amount of nourishing food in a liquid or solid form, as to preferring the liquid form. If my thesis, that the disordered innervation extends to the digestive organs as well as the brain, be true, then let us not give them more to do than they could do in health.

I am sure that further careful study of the subject will show us that there are some special appearances of the tongue that accompany certain special forms of brain derangement. The tongue of acute general paralytic excitement is almost pathognomonic apart from the trembling. There is a certain kind of tongue with a slight grey fur in rather defined patches, and the rest of it red, devoid of mucus, which always suggests to my mind incurable organic disease of the brain. A dry tongue may merely mean great brain excitement and elevated temperature; but if the excitement has lasted for more than a fortnight, and the tongue still tends to have a dry patch down the centre of it, I examine most carefully for organic disease of some organ in the abdomen. This state of the tongue unquestionably makes the prognosis bad. A merely loaded tongue, however much furred, need never alarm us. There is a tongue with long hairy-looking white mucus that accompanies mental depression at the climacteric period in women, that indicates a most intractable condition of brain and stomach innervation.

As a remedy for disorders of digestion in insanity, or perhaps

it may be as a remedy for the disease of the nervous system which is causing both, quinine and iron are worth the rest of the Pharmacopœia, in my experience. We may give the mineral acids as an aid to digestion along with them, and but little more medication for those symptoms will be needed in most cases. Their obviously beneficial effect in most cases tends strongly to confirm the theory that those disorders of the digestive system of which I have been speaking are rather general than merely local affections, for of all tonics they are universally recognised to act generally rather than locally.

Affections of the Lungs.—The affections of the lungs (of which there were 13 cases in the 100) mostly consist of tubercular deposition and its effects. This is scarcely analogous to the derangements of digestion, for I believe the mental symptoms and the lung disease are in the majority of those cases referable to the same cause, viz. the tubercular diathesis. I have entered so fully into the subject before,¹ that I need not dwell on it here, except in so far as the statistics I then published have been modified by a larger experience, and the views I then stated require a more exact definition in accordance with the recent improved terminology in regard to “phthisis pulmonalis” and “tuberculosis.” I suppose one must now speak of the peculiar “weakness and vulnerability of constitution”² which is inherited by so many of the consumptive, instead of the hereditary predisposition to phthisis pulmonalis or tuberculosis. Be this as it may, I found that out of 423 cases of insanity who had died, either tubercles or cheesy deposit were found in the lungs of 282 of them, and of these 282, 66 had died within a year after becoming insane, and 141 within three years after becoming insane; and that in 75 of them the mental symptoms appeared to be so distinctly of a peculiar type that I called it a “phthisical insanity.” All my subsequent experience has strongly confirmed the idea of a special form of mental derangement that goes along with many cases of pulmonary phthisis—both diseases being the different manifestations of the same tendency to impaired nutrition and innervation, in the one case in the brain, and in the other in the lungs. I am

¹ Journal of Mental Science, April 1863.

² Niemeyer on Pulmonary Consumption, New Syd. Soc. Trans., p. 20.

much more hopeful as to the prognosis and treatment of this form of insanity now than I was at first, and at the same time look more closely out for the "phthisical insanity," phthisis pulmonalis, and also for the inherited "weakness and vulnerability of constitution." I think I can often detect the first symptom before the second appears, recognising the special type of insanity, and treating it as if the lungs were really affected; and I find that sometimes the weakness of constitution seems to disappear, the mental symptoms disappearing along with it, and the lung remaining free from any inflammation, phthisical or otherwise, while in other cases the mental symptoms do not disappear, and the lungs become affected in due course, carrying off the patient. In examining all insane patients special attention should be paid to the existence of lung-disease, and particular inquiries made as to the existence of phthisis pulmonalis among near relatives, especially if the mental symptoms are of a sub-acute, variable form, with unprovoked paroxysms of irritability, much unfounded suspicion, an unusual absence of sociableness, and a great disinclination to exert the intellect (these being some of the most noticeable symptoms of phthisical insanity). If along with these there is any tendency to emaciation or loss for some time previously of body-weight, as compared with the healthy standard, I then, whether it be actual lung-disease or not, treat the case as though it were one of commencing phthisis: give all the most easily digested nourishment the stomach will receive, add to this cod-liver oil and malt liquors, let the drug treatment chiefly consist of quinine and iron, and keep the patient warmly clad and much in the open air.

Affections of the Heart or abnormally quick pulse.—The cases of mental disorder in which the heart is affected, or in which its action is increased beyond 100 beats per minute, are very interesting; but as I am not aware they require any special treatment, I need not enter into the connection between the two disorders. There were, as we have seen, 28 such cases in the 100. They consisted chiefly of—1. Cases of intense brain excitement; 2. Cases of intense bodily weakness; and 3, of cases where the nervous derangement was of such a character that one of its chief bodily symptoms was a continued high pulse with

a short nervous beat of the heart. I have also called the last class of cases those with "the nervous pulse." There is no organic disease of the heart, and no special cause for the high pulse beyond the irritable state of the whole nervous system. Sometimes in such cases the pulse falls during sleep, sometimes it does not do so. I look on it as a bad sign for the pulse to keep up so, if there is no corresponding brain excitement, as regards the prognosis. They usually cannot be got into a state of body approaching "good condition." They eat well and often sleep well, but are apt to become cases of "chronic mania."

Uterine Derangements.—The 17 cases in which there were uterine symptoms consisted of—1. Patients with amenorrhœa; 2. Patients with dysmenorrhœa and menorrhagia; and 3, those with tumours and organic disease of the uterus. It is surprising in how few cases of really acute brain excitement the menstrual functions are normally performed. My experience agrees in the main with Dr. Blandford, that amenorrhœa as a symptom in acute insanity requires no treatment, except it persists after the brain excitement has disappeared, or after the body has become strong. Menorrhagia, on the contrary, had certainly better be stopped by the ordinary means, for it weakens the patient. There are certain mental symptoms usually associated with uterine disorders: such as erotic tendencies with menorrhagia, a sense of fear and great irritability with dysmenorrhœa, and a sense of confusion in the head and listlessness with amenorrhœa. There are scarcely any bodily accompaniments of insanity where the judicious use of medical treatment will be followed more directly by mental improvement than where uterine disorders exist, with the exception of amenorrhœa in recent cases. I shall not enter on the consideration of the special form of insanity which occurs at the change of life. In that the mental symptoms have the closest connection with the bodily state. There are certain cases of puerperal insanity where the mental state seems to me to be directly dependent on slight inflammation of the uterus which I have not seen described. I first observed such a case after I began to use the thermometer regularly in all cases of insanity. I found the temperature in this case to be above

100°, and this was accompanied by an evident tenderness on pressure of the uterus, even though the patient was quite maniacal. The application of hot fomentations, followed by a blister on the lower part of the abdomen, was at once followed by a cessation of the mania, a lowering of the temperature, and a disappearance of the tenderness. The lochial discharge, which had stopped, reappeared to some extent. The patient was kept in bed for a few days and remained well in mind. On several occasions since I have observed the same symptoms, though in none has local treatment been followed by quite such immediate relief. The case, however, has directed my attention strongly to the state of the uterus in all cases of puerperal mania. I have never seen one such in which the lochial discharge was normal after the mental symptoms set in, if the latter appeared during the period when there was a lochial flow. It usually completely disappears at once in such cases. Dr. J. B. Tuke¹ has pointed out that in those that occur within sixteen days after labour maniacal excitement is the most common mental symptom, and that in those that occur after this time melancholic depression is the rule. There are few forms of mental disturbance dependent on a distinct bodily condition, that can be influenced so little at present by any local treatment of that condition as puerperal insanity. And yet scarcely any form of insanity so surely recovers as this, and it is most noteworthy that it usually does so as the uterus gets back to its normal condition.

Abnormal Temperature.—We have seen that there were 28 of the cases in which the temperature was about 100° at night. A very much larger number of them showed the less striking abnormality of the temperature being higher at night than in the morning, contrary to the rule in health. In fact, I found that on examining 305 insane patients in all stages of the malady, most of them in a chronic state, “the great characteristic of all the forms of insanity is, that the difference between the morning and evening temperature is much less than in health, and this is owing to the rising of the evening temperature and not to the lowering of the morning temperature as compared with the healthy standard,” and that “this rising of the evening temperature as compared with the morning is in the exact ratio

¹ Edinb. Med. Journ. June 1867.

of the death-rate among the various forms of insanity, finding its acme in general paralysis;"¹ the average evening temperature of which last is higher in every case than the morning temperature, the observations being taken on a sufficient period of the disease. In recent cases of insanity the observation of the temperature of the body is of the greatest importance. The most interesting point that yet requires elucidation is its relation to the state of the nervous system. I find that excitement of the nervous system is almost always followed by an increase in temperature; but I have observed such extraordinary and sudden alterations in the temperature of the body caused evidently by nervous agency alone, that I am unable to come to any sort of reliable deduction that will apply to all cases, and feel that the subject has not been wrought out as yet. But if the complete relationship of the temperature of the body to disorder of the brain with mental symptoms has not been ascertained yet, there are certain isolated facts, more than those I have mentioned, which my experience of the clinical use of the thermometer in those cases has demonstrated. It is very rare indeed for the temperature to rise above 100° from purely nervous causes, except in cases of general paralysis. A continuous high temperature at night, remaining for more than a fortnight above 99°, would be strongly confirmatory if other circumstances pointed to the presence of general paralysis. A very variable temperature in a recent case, however high it may be at certain times, would strongly confirm other circumstances that pointed to a favourable prognosis. Whenever the temperature is above 99°, a most careful examination should be made to ascertain the existence of any inflammatory or other organic disease, or of fever. A high temperature often results from a recent case of insanity not having been properly fed. A few good full meals or feedings with the stomach-pump will in such cases at once bring down the temperature. In women a high temperature often accompanies difficult or profuse menstruation, and sometimes is present at the time menstruation should occur in amenorrhœa. In men it may be caused by masturbation. Among the insane very serious disorders may occur and cause no increase in temperature, so that a low or

¹ Journ. of Ment. Science, April 1868.

normal temperature does not indicate positively the absence of such. The evening temperature after going to bed is more reliable in this respect than the morning temperature. The diagnosis of organic diseases of the nervous system can often be materially assisted by the observation of the evening temperature as compared with that of the morning. If continuously higher, other circumstances pointing to organic disease will be strongly confirmed.

Lowenhardt describes four cases of a form of mania in which the temperature was extremely low, especially before death. It ranged from 77° up to 95° , being thus much below the temperature mentioned by Wunderlich as compatible with life. "The mental condition in all was at first a high degree of maniacal excitement; and towards the end in all the cases symptoms of a paralytic character showed themselves."¹

Everything connected with the temperature of the body in the insane shows the closest connection between the nerve lesion that causes the mental symptoms and that which has the power of disturbing the normal production of animal heat.

In regard to the indications for treatment afforded by the temperature of the body in the insane, I think they are both important and reliable. In the first place, in regard to diet and stimulants, my experience has been that the higher the temperature the more need for the administration of plenty of both. The only exception to this is in the case of general paralysis in the excited stages, when much stimulants do harm. I found by experiment that both food and stimulants tend directly to the lowering of the temperature in maniacal excitement,² this being especially the case with the latter if given in large quantity. I found also that the neurotic medicines that do most good in those cases cause a fall in temperature. This is especially the case with a combination of Cannabis Indica and bromide of potassium, and also chloral hydrate.³ I am quite sure that any medicine which causes an increase of an abnormally high temperature is contra-indicated. The gradual fall in temperature,

¹ Trans. by Dr. Sibbald from "*Allgemeine Zeitschrift für Psychiatrie*," in *Journ. of Mental Science*, Jan. 1870.

² Fothergillian Prize Essay, *Med.-Chir. Review*, Oct. 1870.

³ *British Med. Journ.* May 7, 1870.

especially of evening temperature, is a very sure test of improvement.

General Debility.—The last bodily symptom accompanying insanity which I shall mention is what I have called general debility. By this I mean such a lowering of the general condition of the body as compared with its normal state that it must be reckoned something truly morbid. There were 13 such cases in the 100 I have mentioned. This condition of body undoubtedly precedes certain forms of insanity and accompanies them. I look on it as of nervous origin. It seems as though the nervous centres which regulate the nutrition of the body must be strongly affected in their working. There is great emaciation, no vigour or ability for bodily exertion, languor, and a sense of prostration. The mental symptoms in those cases are generally those of melancholy and depression of mind. There is often a sluggishness in the performance of even the organic bodily functions—a slow pulse, costive bowels, a weak circulation in the extremities, with cold feet, blue hands, and pinched features. I do not include in the cases I am describing those in which this train of symptoms precedes or accompanies organic disease of any kind. That there is no such disease in most of them is proved by the recovery of many of them and the long life of many of the others. In some of them no doubt the symptoms, bodily and mental, I have described are the result of the “breaking down of the system,” or, in other words, old age coming before its time. The original stamina of the constitution has not been sufficient to go on till the usual time for natural decay. But I look on even these as examples of the decay beginning at the nervous system.

The treatment of such cases of debility resolves itself into the two indications of stimulating the nervous system to a more energetic action, and supplying a sufficient quantity of tempting, easily digested, and easily assimilable food. The nervous system should be stimulated by mental as well as bodily stimulants. To rouse, amuse, employ, and distract the attention must all be tried. To this end change of scene and circumstances, powerful means of excitement, and the control exercised by surrounding circumstances or by a stronger will, are often useful. In regard to the second indication, it is not all-sufficient, as in many cases

of insanity, merely to give sufficient nourishment. Much food cannot be digested or used. All the culinary and medical aids to digestion must be employed. Alcoholic stimulants in moderate quantity, nervine stimulants, and ethereal stimulants are all useful in different cases, or in the same case in succession. Such cases are most difficult of true prognosis. It is almost impossible to predict that any particular case will recover. It often depends on the stages of the malady at which appropriate treatment is begun. I shall conclude with an example of a case of this kind in which the mental symptoms were of a character peculiarly incurable under ordinary circumstances, but in which early attention to the bodily symptoms was followed by speedy recovery.

X. Y., aged 57, male, married, good education, a clerk; had never been insane; had been an intelligent active man, sober, and naturally of a suspicious disposition. His mother had been insane. No cause could be assigned for the coming on of his symptoms, which were at first a feeling of bodily weakness, want of appetite, sleeplessness, inability to follow his ordinary occupation; and, mentally, an utterly unfounded suspicion of his wife's fidelity to him, and a delusion that she poisoned his food. He was quite rational on all other points, and at first seemed only to have a half-belief in these delusions. He got worse in body and mind, took less food, lost weight; was very restless, and yet felt as if he could not walk any distance or do anything; began to have hallucinations of hearing and sight, and his delusions got more fixed in his mind. A change was tried, but it did him no good, on account of want of occupation and companionship. He took emetics and purges to get rid of the poison. At his own request he was admitted into the Carlisle Asylum two months after his symptoms commenced. On admission he was mentally slightly depressed, memory quite good, quite coherent, could answer questions, and discourse rationally on any subject except that on which he had delusions, which were strong in his mind. He gave a most circumstantial account of seeing the poison his wife gave him, and put on his clothes, and said he heard confused voices and a humming like that of bees in the roof of the room, and he smelt bad smells. Bodily, he was a thin, anxious, suspicious-looking

man, with grey eyes, little fat and flabby muscles, pupils equal and contractile, reflex action normal, nervous system atonic, indisposed to exertion, and excitable; his hand was so shaky he could not write; lungs and heart normal; pulse 76; tongue clean, appetite capricious, temperature 99°; height five feet eight, weight 125 lbs.

After admission he slept ill, and said he could not help brooding over his ideas. He was put on nutritious diet, cod-liver oil, two glasses of wine per diem, and a mixture of citrate of quinine and iron, and spirit of chloroform. He was induced to employ himself, read the newspapers, play draughts, and be much in the open air. He rapidly improved in body and mind, until in a few weeks he was gaining several pounds a week; at first he began to suspect his delusions to have been mere fancies, was soon able to see his wife and converse pleasantly with her, and when she began to sound him on his delusions he at once changed the subject, saying afterwards that he thought it better to avoid "dubious matters." He ceased to have the hallucinations; soon he slept well all night, was able to employ himself in reading and writing continuously, and in about five weeks completely lost belief in his delusions, laughing and saying what a "fool" he had been to believe such things. He was discharged quite well in two months, having gained 18 lbs. in weight, with an excellent appetite and digestion, his temperature normal, and able to attend to his usual employment.

I had been consulted about this before I saw him, and I said without much hesitation that he would probably be incurable. It was only when I saw him and found these well-marked bodily symptoms that I had the least hope of recovery. The mental derangement, consisting chiefly of a monomania of suspicion of poisoning, with hallucinations of hearing, is, ordinarily, I need scarcely say one of the most hopelessly incurable forms of insanity in existence. It is only by being taken in time that such a case ever recovers. Above all things, it is only by attending to the bodily disorders present that either a right prognosis or a right treatment can be arrived at.

OBSERVATIONS ON THE HYGIENE OF VISION.

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PART IV.

IN eyes originally of abnormal refraction, or ametropic, the simple natural relation between the muscular efforts required for accommodation and for convergence has, of course, never existed. A patient, with hypermetropia = $\frac{1}{6}$, that is, requiring a convex lens of six inches focal length for its complete correction, would look at the horizon with as much accommodation effort as a normal eye would exert for an object six inches distant, and, at the same time, with no convergence at all. On the other hand, a patient whose myopia was = $\frac{1}{6}$, requiring, that is, a concave lens of six inches focal length for its complete correction, would use no accommodation at all for an object six inches distant, although converging for it in a degree proportionate to its nearness. In both affections, the attendant impairment of vision is almost invariably accompanied by muscular distress, which, under the name of "pain" or "straining," is, more often than the impaired vision itself, the cause which impels the patient to seek relief.

In the lower degrees of myopia, say in those in which it is easy to read at a distance of from fourteen to eighteen inches from the face, the habitual requirements of the patient render him insensible to the exercise of this amount of convergence; which may then be considered as a starting-point of his convergence function, and as equivalent to the parallelism of normal eyes. When, as frequently happens, from defective light, or some other cause, the book is brought still nearer to the reader, and still

more convergence is exerted, there is, it is well known, a great liability to injury of the eyes by mechanical thinning, wasting, and stretching of the choroid, and eventually also of the sclerotic, as a result of the increased convergence. Now I think it can hardly be doubted that, just as a relaxed muscle will be seriously injured by a blow or strain, which a contracted muscle would receive with impunity, so a chief reason of the mischief done to the choroid by myopic convergence may be found in the relaxed state of the membrane. The muscle of accommodation, as one of its names implies, and as recent researches have shown, serves to brace and render tense the choroid; and, in this state, the strain caused by convergence effort is resisted. But, in myopic convergence, the accommodation is nearly or entirely relaxed, and the choroid yields passively to the pressure that is exerted upon it. The yielding of the ocular tunics increases, of course, the absolute degree of myopia; and so the evil proceeds in a constantly increasing ratio. The means of preventing it must be sought in the sedulous inculcation of the precept, that even those who are only moderately myopic must keep their books or their needlework at the farthest possible distance from the eyes. In the case of young people, especially, this is important to be observed; and in them a tendency constantly to diminish the reading distance will usually be very apparent. When this is so, the use of concave spectacles for all near work should be rigidly enforced. Their use out of doors may be regarded as a question of convenience and taste, to be decided by the patient in accordance with his own notions of comfort. But for all educational work it should be absolutely imperative, whenever the degree of myopia amounts to $\frac{1}{16}$, or whenever, with a lower degree, such as $\frac{1}{14}$ or $\frac{1}{18}$, there is a manifest tendency to bring the work within this limit.

In connection with this subject, it is highly desirable not to lose sight of the very important researches of Dr. Cohn, of Breslau, with regard to the existence and increase of myopia in German schools. Even superficial observers had long been aware of the great prevalence of the affection in Germany; but Dr. Cohn, by his examination of 10,000 children, showed that it increased progressively in the ascent from the elementary to the upper schools; and that not only as regards the percentage of

myopes to other pupils, but also as regards the maximum and average grades of the defect. In searching for the causes by which the conditions thus discovered might be explained, Dr. Cohn found them to be mainly two in number. The first was deficient illumination, rendering it necessary that the children should approximate their eyes to their work in order to receive light enough from its surface; and the second, defective construction of school fittings, the seats and desks being so arranged as to bring about the same approximation. The most common fault was that the seats and desks were too low, and too far apart, for the stature of the pupils,—who, sitting on the edge of a bench, were constrained to lean forward over their work. The probable spread of education in the United Kingdom renders it very desirable that in this particular our School Boards should take warning by the experience of others, and not suffer it to be repeated amongst ourselves.

In myopia of a still higher degree, ranging from $\frac{1}{10}$ to $\frac{1}{6}$, the derangement of muscular action generally assumes the form known as “insufficiency of the internal recti muscles,” in which the convergence effort necessary to afford single vision with both eyes cannot be maintained for any length of time. In such cases, however, an effort will be made to maintain it, and hence the use of the eyes will soon become irksome or painful. In too many instances, this pain has led persons imperfectly acquainted with the conditions to give advice to “rest the eyes;” and this advice is not only in harmony with the natural inclination of the patient, but also, when followed, affords immediate relief. If the muscles are not exerted they cease to ache. But, like all other muscles, they undergo loss of tone from disuse; and the more the eyes are rested the less they will be able to work. The common prescription of rest is altogether bad; unsound in principle, and utterly disastrous in practice. I have seen many patients who have acted upon it sedulously; with the result that ten minutes’ use of the eyes would at any time bring on pain and lachrymation; and that the unfortunate sufferers, debarred from nearly every form of intellectual occupation or amusement, were constantly dwelling upon their own defective vision, and upon their very natural fears lest blindness might some day close the scene.

The principle to be adopted in the management of such cases is to fix upon some practicable degree of convergence, say to twelve or fourteen inches, and then to train the muscles, by discreet and proper use, and by gymnastic exercises, to do what is required of them. For this purpose the first thing necessary is to choose the concave lenses that will give to the eyes the sharpest vision at the selected distance. If the myopia be $= \frac{1}{7}$, and the distance be fourteen inches, we allow half an inch of this for the distance of the lens from the nodal point of each eye, and deduct $\frac{1}{13\frac{1}{2}}$ from $\frac{1}{7}$. The remainder is $\frac{1}{14\frac{1}{2}}$; and hence concave lenses of $14\frac{1}{2}$ inches focal length should be chosen. Their first effect will be to render the rays, proceeding from an object fourteen inches distant, as divergent as if its distance were only seven inches; so that they will be united upon the retina without accommodation effort. Experience must then determine whether the convergence to fourteen inches in repose of the accommodation is practicable or not; and if not, why not? It may be impracticable for various reasons—either from insufficiency of the internal recti muscles *per se*, or from the difficulty of keeping them in action while the accommodation is in repose, or from the fact that the accustomed convergence to seven inches has produced shortening of the internal recti, with corresponding elongation, and weakening of their opponents—so that vision at fourteen inches really requires a *divergence effort*, to which the *external* recti are unequal. In order to determine accurately which of these conditions is present, it is necessary to be provided with a testing frame in which any desired pair of prisms can be placed before any pair of lenses, and rotated into any position without interfering with the latter. Such a frame, with the addition of a slide by which the distance apart of the lenses can be adjusted to fit any width of face, has been contrived by Messrs. Weiss. The patient should first wear the concave lenses alone, and read with them until fatigue commences. A pair of weak prisms should then be added, say of about 4° , with their bases inwards. This arrangement will require the direction of the eyes to a more distant point; and, if the *internal* recti are tired by maintaining convergence to fourteen inches, will give immediate, though per-

haps only temporary, relief. If, on the contrary, the internal recti are striving to bring the eyes to greater convergence, and the external recti are tired of resisting this effort, the prisms in this position will increase the strain, and may even produce double vision. By turning them round, so as to place their bases outwards, relief will be afforded. Relief by prisms with bases outwards means weakness of the external recti; by prisms with bases inwards, weakness of the internal recti. In the latter case, the next point to be determined is, whether the internal recti are weak absolutely, or only incapable of continued action during repose of the accommodation. To determine this, a trial should be made after a period of repose, to see what strength of prism the untired internal recti can overcome, so as to unite the double images. If they can overcome a prism of 12° , they may be regarded as not absolutely inefficient; and then the proper treatment is to paralyse the accommodation by the regular use of atropine, and to persevere in reading with the prescribed lenses, and at the stated distance, until the difficulty is overcome. Such perseverance must be regarded and practised as a gymnastic exercise, to be stopped short of producing undue fatigue, and to be resumed at regular intervals. There will often be a good deal of pain and trouble at first, especially with nervous patients, and with those who have previously been encouraged to "rest the eyes;" but the eventual reward is sure. If, on the other hand, the internal recti are absolutely weak, and cannot overcome the diplopia caused by a prism of 12° , it will usually be necessary to weaken their antagonists, by section of one or both external recti. After this operation, and, in some cases, even before it is had recourse to, gymnastic exercises with prisms may be employed. For these, it is best to have two pairs of concave lenses of the proper focal length, ground on prisms of about 4° , and to have one pair mounted in a frame with bases inwards, the other with bases outwards. They may then be used for short periods alternately, the pair with bases outwards to call the internal recti into vigorous action, the pair with bases inwards to relax and rest the internal recti in the intervals of exertion.

In the very high degrees of myopia, ranging from $\frac{1}{6}$ up to $\frac{1}{3}$, or even to $\frac{1}{2}$, the principles of treatment are the same. But in these cases it often happens that the eyes have saved themselves

from convergence strain at the expense of binocular vision ; that they squint divergently with regard to objects at the visual distance of the patient. When this is so, and has become a confirmed habit, it will seldom be worth while to attempt to restore binocular vision. The patient will usually be found to use one eye chiefly for reading, and the other, with its appropriate glass, chiefly for distant vision. It can seldom be necessary to disturb such an arrangement ; and the use of a glass for the reading eye is a matter that may be left to the instincts of the patient. He should be warned, however, if he does not use a glass, but prefers to bring his book close, that he should also hold it a little to the side of the eye that is used, instead of in the middle line of the face. The object of this is to rest all the muscles, by keeping the eye nearly in mid-position in the orbit.

In cases of hypermetropia, the derangement of muscular action very frequently declares itself as strabismus ; the accommodation effort necessary for clear vision entailing also a convergence effort that permanently inclines the visual axes towards each other. The defect then becomes the subject of operation, by which, in the great majority of cases, it is only very coarsely and imperfectly remedied ; whereas it must be manifest that, so long as the sight of the ordinarily squinting eye has not suffered, an absolute restoration of the normal state ought to be at the command of the surgeon. The patients, however, are so largely furnished by the poorer classes of society, that they can seldom give the time and attention necessary for a cure ; and, when this is so, a removal of the manifest deformity is all that can be achieved. In patients of the upper classes, however, this result should not be considered sufficient, and a careful study of all the factors of the case, and of the relations between accommodation and convergence, should lead to just so much setting back of the contracted muscles by operation, and to such subsequent exercises with prismatic spectacles or with a stereoscope, as may restore the normal convergence play over the whole extent of its range. To do this is important, not only for the sake of the perfect cosmetic result, but also because educated people, inasmuch as they use their eyes upon near objects more than the uneducated, would suffer more than the latter from the derangement of convergence which is produced by a

roughly-planned squint operation. In the very high degrees of hypermetropia, squint comparatively seldom occurs; but there is in such cases frequently a loss of binocular vision, and great care in the study of the relations between accommodation and convergence is necessary to its being restored. In fact, in all, or nearly all, ametropic conditions the attention of ophthalmic surgeons has hitherto been given far too exclusively to the state of the refraction and of the accommodation, while that of the convergence has been neglected, and the practical uses of carefully-graduated prisms have remained almost altogether unknown. The effect has been that many of the defects of refraction have been only partially remedied, and the patients left to use their eyes with some amount of strain and effort, or with some kind of limitation which a further study of the conditions might remove. It would be very difficult to exaggerate the benefit that has been conferred upon mankind by spherical lenses alone, and especially by the labours of Professors Stellwag v. Carion and Donders; but in this, as in every other department of our art, it should be the constant endeavour of practitioners to arrive at still further improvement. To rest complacently on the work of those who have preceded us is to assume an attitude not favourable to the discovery of truth.

In all the forms of ametropia it is desirable to examine carefully for astigmatism, which is far more common than is generally supposed, and which, even in slight degrees, is very disturbing to vision. In many ladies of irritable nervous temperament and defective muscular tone, and still more in poor people, with whom defective muscular tone is a result of imperfect feeding, the effect of an astigmatism of only $\frac{1}{20}$ or $\frac{1}{40}$, added to a general myopia or hypermetropia, is just that of the last straw of the proverb. We shall readily understand this if we reflect that astigmatism means a constantly recurring change in the accommodation, with no associated change of the convergence. It is not so much the accommodation efforts alone that are fatiguing, as the strain of keeping the direction of the eyes unchanged while they are being made. The best ready test for astigmatism is furnished by the sheet of types designed for the purpose by Dr. Orestes Pray, which may be obtained in England of Messrs. Weiss. The sheet contains twelve letters, each formed of alter-

nate lines of black and white, the lines being equal in all the letters, but having a different direction in each. The patient, placed opposite to, and at some distance from, the sheet, and glancing at it with one eye only, should rapidly decide whether the lines are more clearly defined in one letter than in the rest, and if so, the existence of astigmatism, and the directions of the meridians of least and of greatest curvature, are at once declared. The letters will not answer the purpose of objects for determining the degree of astigmatism, because the patient becomes confused between them; so that single lines are always to be preferred for the rest of the investigation. On this part of the subject, however, full details may be found in the various treatises on the errors of refraction.

REMARKS ON TETANUS.

BY C. MACNAMARA,

Surgeon to the Chandnic and Ophthalmic Hospitals, Calcutta.

ON referring to the records of the Chandnie Hospital, I find that eighty-three natives of India have been treated in this institution for tetanus, from January 1865 to the close of the year 1869. The following table exhibits the result of these cases:—[†]

CURED.		RELIEVED.		ABSCONDED.		DIED.	
Traumatic.	Idiopathic.	Traumatic.	Idiopathic.	Traumatic.	Idiopathic.	Traumatic.	Idiopathic.
14	20	5	8	1	1	24	10
34		13		2		34	

Of the eighty-three cases, two absconded from hospital, so that we have to account for eighty-one instances of the disease; thirteen were said to have been “relieved” when discharged from hospital, of these six were so far well when they left the establishment as to give reason for the belief in their ultimate recovery; it follows, therefore, that of forty-two cases of traumatic tetanus, 38 per cent. recovered; and of the thirty-nine instances of idiopathic tetanus, 60 per cent. recovered. The medical treatment followed in these eighty-one cases has been uniform, consisting in the administration of aloes and Indian hemp, as recommended by Dr. J. Jackson (*Indian Annals*, Pt. 58, October 1853). The diet of these patients was confined to bread and milk throughout the more severe stages of the disease; subsequently they were allowed to eat almost anything they pleased.

Since the 1st of September, 1870, I have treated ten consecutive cases of tetanus in the Chandnie Hospital with the hydrate of chloral—this drug has, in fact, been the only medicine prescribed; the patient’s diet being precisely similar to that above noticed. The quantity of chloral administered varied from 40 grains to 160 grains per diem, according to the severity of the symptoms and the age of the patient; but after a little experience

of the effects of chloral, it seemed to me that it had no specific influence over the tetanic spasms ; nevertheless, there can be no doubt that even in the most severe cases of tetanus this drug has the power of sending the patient off into a deep sleep, and thus for the time being of preventing the tetanic spasms ; but in several instances it appeared as if the hydrate of chloral, by thus keeping back the tetanic energy, rendered it more concentrated ; after deep sleep from chloral the spasms sometimes returning with such terrible violence as speedily to destroy the patient. Of the ten cases treated exclusively with chloral, seven were instances of traumatic tetanus, and only one of these recovered ; two cases of idiopathic tetanus were thus treated—one of these recovered, as also did a case of the disease occurring fifteen days after childbirth. My experience thus far has led me therefore to conclude that I was hardly justified in trusting to the chloral alone in the treatment of severe cases of this disease ; as an hypnotic it seemed invaluable, but we must, if possible, do something more than put our patients to sleep in the management of bad cases of tetanus ; and although Calabar bean possesses an influence infinitely short of being a specific in this disease, nevertheless the extract of physostigma, if judiciously employed, has, I think, a salutary influence over some cases of tetanus. The following is an instance in point :—Baghuth, aged 35, was admitted into the Chandnie Hospital on the 19th February, 1871, suffering from a contused wound over the back of the left hand ; sixteen days after the injury symptoms of tetanus set in (6th March), there was stiffness of the muscles of the neck and chest, but no trismus or difficulty of deglutition. I ordered a grain of the extract of Calabar bean to be administered to the patient every second hour, its effects being carefully watched ; and he was also to take 40 grains of the chloral hydrate at bedtime. The next day the patient's pupils were well contracted, but the tetanic spasms were most severe ; the same treatment was continued on this and the following days. On the 10th March opisthotonic spasms were very violent, and the man was in extreme agony, *but there was no difficulty in swallowing*. I increased the quantity of Calabar bean to one grain every hour. On the 11th the tetanic spasms were still very intense, and I therefore directed two grains of the extract every hour, with the chloral as usual

at bedtime. On the 14th, the spasms being unrelieved, I directed three grains of the extract to be administered every hour; at 8 P.M. of this day the tetanic convulsions were much less violent; the patient had taken no less than 48 grains of the extract of physostigma during the twenty-four hours. The medicine was continued, however, in the same doses throughout the following day in consequence of a return of the tetanic spasms, and so on till the 17th, when the patient was much easier; his skin was bathed in a profuse cold sweat, and he had passed some sixteen liquid stools during the day. The Calabar bean had evidently taken full effect on the system, and was now gradually diminished; after the 20th the tetanic spasms were merely nominal, and the patient gradually recovered. He consumed altogether one ounce and six drachms of the extract of Calabar bean, and an ounce and five drachms of the hydrate of chloral.¹

¹ Table showing the state of the pulse, respiration, and temperature, in the case of Baghuth; the latter was probably much influenced by the Calabar bean.

DATE OF MONTH.	PULSE.		RESPIRATION.		TEMPERATURE.	
	M.	E.	M.	E.	M.	E.
7th	84	86	18	18	98°	99°
8th	84	90	18	24	97·1	99
9th	84	90	18	24	98	99
10th	90	84	24	24	97·3	96·2
11th	90	96	24	24	98·1	97·2
12th	96	108	24	30	97	99
13th	108	108	30	30	98·3	99
14th	114	126	36	42	100	99·3
15th	120	114	30	30	98·3	99·2
16th	108	108	30	30	98·3	99
17th	120	120	30	42	98·4	98
18th	108	120	24	36	98	98·3
19th	108	108	24	24	97·2	98·1
20th	108	102	24	24	97·2	98
21st	108	108	24	30	98	100
22d	102	108	24	30	99·3	100·3
23d	90	108	30	30	99	100·3
24th	96	108	30	30	98	98·4
25th	96	108	30	30	98·2	98
26th	108	126	24	36	98·2	99
27th	108	108	30	30	98	98·1
28th	102	102	24	24	98·1	97·4
29th	102	114	24	24	98·3	98·3
30th	102	96	24	24	98·2	97·4
31st	96	90	24	24	97·4	97·2

That this specimen of the extract of physostigma was perfectly good is proved by its effects on other patients ; the following is a case in point :—

Jothendrouth Dass, a powerful man, came into hospital on the 27th of May, 1871, at 2 P.M. ; he had been working in the sun (the day was extremely hot), when he was suddenly seized with dizziness and a violent throbbing pain in the head. On admission the temperature of his body was found to be 105°, P. 134, R. 38. At 3 P.M. one grain of the extract of physostigma was administered by the mouth. At 4 P.M. the temperature of the patient's body had fallen to 100°, P. 128, R. 18 ; he stated that the pain in his head had entirely left him. At 4.30 his temperature had gone down to 97°, P. 100, R. 15 ; his body was covered with a cold sweat ; in fact, he looked very much like a man in the collapse of cholera.

The next morning, Jothendrouth seemed almost well, and he left the hospital two days afterwards, apparently in good health. It is not my purpose now to discuss the effects of Calabar bean in cases of pyrexia of this description ; its advantages over most other drugs of the kind seem to me to consist in its apparently affecting principally the vaso-motor (and perhaps the inhibitory) system of nerves, and only slightly, if at all, the cerebrum. It is very remarkable, however, how decided was the effect of one grain of this drug over the fever, in comparison with the large quantity of the very same sample of the medicine required to induce its specific action on the patient affected with tetanus. The question naturally arises, can all patients, suffering from tetanus, take this large quantity of Calabar bean with impunity ? Most certainly not ; it is a very dangerous medicine, and requires the greatest care in its administration. In fact, as Dr. Fraser has remarked, it is impossible to lay down any rules regarding the amount of physostigma which we can administer in any given case, we must be guided by its effects on the system ; so soon as it induces vomiting, diarrhoea, or a rapid small pulse, and clammy sweat, we are bound to discontinue its employment at once. I believe, however, that in cases, such as the one I have above recorded, and in which the nerves of the spinal cord were principally involved, if the tetanic spasms are very severe, the Calabar bean is undoubtedly useful in the treatment of the

disease. On the other hand, if the muscles of deglutition and respiration as well as the diaphragm are much complicated in the spasms, I think the extract of Calabar bean should not be administered. I believe in these latter class of cases, when the medulla is evidently involved, that physostigma is not only useless, but is actually calculated to do harm.

This point leads me to the conclusions I have formed as to the general prognosis and treatment of tetanus; with reference to the former, I think we should be mainly guided by the temperature of the patient's body, so long (I am referring to the natives of India) as the temperature of the body is below 100° F. I would give a favourable prognosis; and I would treat such a patient by giving as much milk and arrowroot as he could take, with a little wine and soup from time to time, and for an adult, 40 grains of hydrate of chloral at bedtime. If the temperature of the patient's body, however (especially in the morning), rises to 101°, there is danger to be apprehended; should the temperature rise suddenly from 99° or 100° to 102°, the patient is in imminent danger, and I have seen few cases of tetanus recover after the temperature of the body has risen to 103°. In these cases, however, we should resort to the extract of calabar bean, and hydrate of chloral at bedtime, and we may do so with some hope of success, provided the temperature keeps under 103° and the muscles supplied from the spinal nerves are chiefly implicated; but if the muscles directly under the influence of the medulla are involved, and the temperature of the patient's body reaches 103° and upwards, we should relieve his terrible agony with hydrate of chloral, but can have but faint hopes of his recovery. After death from tetanus, the temperature of the body rises rapidly to about 107° F.

ON SESQUICHLORIDE OF IRON AS A PROPHYLACTIC OF ACUTE RHEUMATISM.

BY DR. ANSTIE.

A CONSIDERABLE space of time has now elapsed since the announcement, by Dr. Russell Reynolds, of his observations on the successful treatment of acute rheumatism by large and frequent doses of the tincture of sesquichloride of iron. I do not know to what extent this plan of treatment has become generalised; but there have been a good many reports in the medical journals of its employment in different hospitals; and the balance of evidence derivable from these seems distinctly favourable to the method. My own experience of it in fully declared acute rheumatism has not been large. I have treated six cases altogether with the sesquichloride, and in four of these I think the results distinctly bore out the main assertions of Dr. Reynolds as to the prompt relief of the pains, the limitation of the extent of mischief, and the shortening of the illness; in the other two, the medicine seemed to have no special effect. But it is not of the use of the sesquichloride in fully developed acute rheumatism that I now wish to speak. My opportunities of seeing disease on a large scale being chiefly those afforded by the out-patient room, it is rather the first advancements and threatenings of acute rheumatism, than the declared disease, that I am in the habit of seeing. A considerable number of persons present themselves in my out-patient room, in the course of twelve months, suffering from the preliminaries of acute rheumatism; it is one of the small group of really serious diseases (amongst a much larger variety of trivial complaints) which occupy one's attention in out-patient practice, and was formerly a matter of great dissatisfaction to me, from the apparently almost total failure of remedies to pro-

duce any effect. Whereas threatenings of gout could be very commonly dealt with in such a manner as to prevent the attack, or render it trivial, the onset of acute rheumatism seemed never to be averted by drugs when once the prodromata had reached the stage which pretty frequently presented itself before me, viz. a more or less obscure aching of several joints,¹ a yellow sallowness of face, with patches or streaks of dusky redness, blanket-like furring of tongue, an oily moisture of skin, a distinct though slight elevation both of pulse and temperature, and a certain anxiety of respiration. So far as the history of such patients could be traced, they were almost invariably found to have developed the full symptoms of the acute disease, and very often (after once seeing them in the out-patient room) one encountered them, a few days later, in a ward of the hospital.

Very different have been the results of treatment since I adopted the use of full doses of sesquichloride of iron from the first moment of such cases presenting themselves. During the past twelve months I have done this fully. Whenever a patient has presented himself with articular pain and slight fever that were plainly of the rheumatic and not of the gouty type, he has been at once placed on thirty or forty minimis doses of the tincture of sesquichloride, from three to six of which, according to the severity of the symptoms, have been given in each twenty-four hours. I have several times called the attention of the students to the fact that (unlike what used to happen) these cases now reappear in my out-patient room on my next hospital day; and in the great majority of instances declare themselves greatly relieved. Since July 1870 I have treated twenty-nine such patients, of whom thirteen had previously had one or more regular attacks of rheumatic fever, for the symptoms now referred to, with the full doses of iron; and of these, seventeen have lost all pyrexia and spontaneous joint-pain within the three or four days elapsing before my next day at the hospital. Only three have, under my own eyes, developed the full acute disease, and been sent into the ward. Of the remaining nine, four disappeared altogether from my knowledge, so that I

¹ I have, on the contrary, known pain in or near a *single* joint (sometimes simulating neuralgia) with slight fever, *sallow* skin, &c., yield to iodide and bicarbonate of potash.

cannot say what became of them ; the other five, though their symptoms were checked, remained in a state of what might be described as sub-acute rheumatism during from ten to twenty-two days.

I cannot help remarking with emphasis on the contradiction to old ideas which is involved in the effect of this iron treatment upon the furred tongue. Of course it becomes speedily blackened ; but so far from the furring increasing, or the dryness and foul taste becoming more pronounced, what commonly happens is, that after a few days the epithelial coating falls off in considerable patches, and the tongue soon cleans altogether. I believe the prophylactic treatment of rheumatism by the sesquichloride to be one of our most valuable recent improvements in medicine.

Reviews.

The Dynamics of Nerve and Muscle. By CHARLES BLAND RADCLIFFE, M.D., F.R.C.P., Physician to the Westminster Hospital and the Hospital for Epilepsy and Paralysis, &c. &c. London: Macmillan & Co.

THIS very able work has lain much longer on our table than should have been the case if regard were had to its relative importance in comparison with that of other books that have appeared simultaneously or subsequently. The fact is, and we are not at all ashamed to say it, that we were by no means prepared to deliver any opinion on the merits of Dr. Radcliffe's book off-hand; and even now we feel great hesitation in discussing it. It may seem right and proper to some folk to dash headlong into the discussion of a subject like that of electro-physiology, and to pronounce confident opinions with that magisterial air which looks so effective; but to those who are at all behind the scenes such criticisms seem rather ridiculous. For the truth is, that the number of persons who are at all qualified, by practical knowledge, to criticise experiments in electro-physiology might, in this country, be reckoned on less than the fingers of two hands; and of these hardly one would venture to speak strongly unless he had enjoyed the opportunity of going over precisely the same experimental ground as the author whom he was criticising. Dr. Radcliffe has devoted himself to this difficult study of electro-physiology with an energy and a perseverance that are uncommonly rare, more especially in England, where pure science is so constantly thrust aside by the demands of active medical practice—demands which, in his case, have been heavy and continuous. He is entitled, therefore, to the most respectful attention when he speaks on his favourite topic; and we may feel quite sure that his observations will prove to be important whether we can see our way to perfect agreement with his conclusions, or not.

It need hardly be said here that the main peculiarities of Radcliffe's theory of nerve and muscle-action, which have now been for some years before the world, are two :—(1) That the true

healthy muscular and nervous function consists, not in the excitement of muscular *contractions* or in other phenomena of irritation, but in the maintenance of a condition of *relaxation*; and that contractions, voluntary or involuntary, are produced by a temporary suspension of the governing influence. (2) That the governing influence which maintains the normal condition of relaxation is of the nature of electricity of tension, or electrical charge, and that the *discharge* of this electricity (analogous to the discharge of a Leyden jar, or of the torpedo) is responsible for the occurrence of muscular contractions. So far as this goes, the profession have been acquainted with Dr. Radcliffe's views ever since the year 1864, in which he first announced¹ the belief that the phenomena of muscular and nervous electricity are phenomena of static, and not of current, electricity. In the present volume, so far as he advances new matter, it is chiefly by way of fresh illustration and argument in favour of the above views, and especially in the shape of more precise experimentation on the comparative states of electrical tension in muscle and nerve when at rest and in action, by means of the quadrant-electrometer of Sir W. Thompson. It should be remembered that Radcliffe applies all that he says of the electric state concerned in muscular contraction as opposed to muscular rest, to that prevailing in the state of pain and other forms of nerve-irritation as opposed to the condition of nerve-rest. Repose, either of nerve or muscle, implies electric charge; action implies discharge.

There can be no doubt that formidable difficulties stand in the way of any presentation of Radcliffe's theory which should be at once intelligible and convincing. He has, in the first place, to satisfy us that the ordinary view, of which Du Bois-Reymond is the most distinguished representative—that the natural electricity of muscle and nerve is of low tension, and exists in the form of perpetually-generated *currents*—is unsatisfactory. He has to demonstrate the existence of phenomena of high tension in resting nerve and muscle, and their disappearance during the state of action. He has to provide us with some intelligible account of the way in which the structure of muscle and nerve can perform the functions of a series of Leyden jars. And finally he should certainly, it would seem, provide us with some probable explanation of the machinery by which such very varied phenomena as (*e.g.*) epileptiform convulsion, rhythmic muscular action, and voluntary movements of every grade of velocity or slowness, can all be produced by one and the same agency—that of the discharge of normal electricity of tension.

We have to confess that this large undertaking of our author has not been accomplished in such a manner as to compel our

¹ Lectures on Epilepsy, Pain, and Paralysis. Churchill: 1864.

adhesion; but we must also express our surprise at the drift even of the abler criticisms of it which have so far appeared. For instance, that is surely an altogether exaggerated view which treats Du Bois-Reymond's hypothesis of peripolar molecules with as much deferential respect as if it were a kind of scientific revelation, too sacred to be rashly meddled with. We yield to none in our admiration of the vast scientific knowledge and the untiring diligence of Du Bois, as an experimenter in electrophysiology: but (notwithstanding the praise accorded to it by Helmholtz) we have always looked upon his hypothesis of peripolar molecules as bearing the unmistakeable stamp of that rude kind of theorising which belongs to the infancy of science and can only fulfil a very temporary purpose. Let the reader judge. Du Bois' problem is to account for the electrical phenomena exhibited by living nerve and muscle, on the supposition (a) that they are altogether produced by currents; (b) that the more important currents circulate entirely around the ultimate molecules of the nervous or the muscular fibres; (c) that certain smaller currents, derived from these, are perpetually overflowing and appearing externally during the state of muscular and nervous rest, but that (d) during action these external currents disappear or greatly diminish, the electric action being confined almost exclusively to the interior of the fibres. For this purpose he supposes the whole tissue of nerve and muscle to be made up of spherical molecules, which we shall figure to the reader's mind, by asking him to imagine any number of infinitesimal marbles, painted with a red equatorial stripe, and two black dots for poles; the red equator representing positive, and the black poles negative, electricity. In the state of rest these atoms are so arranged that equators touch equators, and poles touch poles. But when the muscle or nerve is thrown into action, a partial rotation of some of the molecules takes place, by means of which equators (positive) are made to touch neighbouring poles (negative), and thus the whole or the greater part of the derived currents which would have appeared externally are short-circuited, and compelled to circulate within the tissue of the nerve or muscle. The warmest admirer of the ingenuity of this hypothesis must allow that it is most crudely artificial. But, say its upholders, it at least explains all the facts: and especially it explains that remarkable diminution of the externally perceptible nerve and muscle current (as tested by the galvanometer) during the state of action which has been established beyond doubt; and also the remarkable phenomenon of *induced contractions* (which are procured by laying the nerve of one amputated frog's-limb on the muscle of *another* amputated limb, when contraction of the gastrocnemius of the second will excite similar action in the gastrocnemius of the first limb). Is

this really so? We believe, with Radcliffe, the hypothesis does not explain the facts. We find it difficult or well-nigh impossible to understand how there can be anything like a regular and equable separation and distribution of the opposite electricities, such as the theory supposes, among tissues of varying conductivity like those which enter into the composition of each nerve and muscle; and especially we are at a loss to conceive how the state of equilibrium or physiological rest is maintained on such a plan. And as regards the phenomena of induced contractions, we are equally unable to see how Du Bois' theory explains the facts. Here are two amputated frogs' limbs; we lay the nerve of A across the muscle of B, the muscles of both limbs being at rest. The electricity at the surface of the muscle of B passes into the nerve of A, says Du Bois. We now throw the gastrocnemius of B into action, and the gastrocnemius of A contracts: Du Bois says this is because the muscular action in B causes the withdrawal of electricity which was passing into the nerve of A: the nerve being thereby irritated as when a continuous current passing through a nerve causes irritation by its sudden arrest. But it seems to us quite unjustifiable to compare, with the action of such continuous currents as we can artificially apply, the action of such an exceedingly feeble one as the ordinary muscle current, nor can we think it at all likely that the sudden suspension of such an influence would so act on a nerve as to throw its attached muscle into visible contraction. In short, it appears to us that, in these and in some other particulars, the theory of Du Bois does *not* explain the facts.

On the other hand, it appears to have been overlooked by the critics of Radcliffe that he produces evidence of a positive kind for the existence, in resting nerve and muscle, of electricity of high tension, and for its discharge during action, which can only be refuted by renewed experiments, of a similar kind to his own, leading to opposite results. No word of this is mentioned by his critic in the *British Medical Journal*, and yet it is the central fact in Radcliffe's new argument; and as the experiments were made with an instrument which registers *only differences of tension*, and not current phenomena at all, it is difficult to understand how an experienced observer can have been deceived. At any rate, the only way to answer him is to repeat his observations and prove them incorrect. Another real injustice which has been done to our author is the ignoring or misunderstanding of his experiments showing the exceedingly low conductive power of various animal tissues—yellow elastic fibre being the very worst conductor—since, whether they suffice to support his own doctrine or not, they unquestionably (if correct) place great difficulties in the way of our accepting the ordinary explanations of the phenomena of animal electricity. Nor do we observe that

any critic has directed adequate attention to Radcliffe's new statement of the phenomena of electrotonus, which is very important, since he declares, from new experiments, that the fancied opposition between the effects of anelectrotonus and cathelectrotonus is almost entirely illusory. On this point the evidence that Radcliffe brings forward is simple and direct, and ought to be easily verified or refuted by other investigators. Taken together with the experiments which he adduces respecting the supposed differences between the effects of the "inverse" and the "direct" voltaic currents, they form a body of facts which have a value and importance that is independent of the fate of his main theory, inasmuch as they have a direct bearing on the subject of the medical use of the continuous current. It is plain that if the physiological differences between anelectrotonus and cathelectrotonus, and between the direct and the inverse current, be as small as they are made to appear by the result of Radcliffe's later researches, a great deal of the theoretical importance that has been attached to the direction of the current in the treatment of paralysis, neuralgia, and spasm, is based upon error: a conviction to which we have personally long been tending in consequence of facts that we have repeatedly observed in the practical use of the constant current; especially as Dr. Russell Reynolds has lately announced, as the result of his large experience, that he finds no evidence of a difference of action, therapeutically, according to the direction of the stream. Very important, also, is Radcliffe's suggestion (if it be ultimately verified), that the most effective method of employing the constant current is to charge the whole of the tract of nerve or muscle included between the electrodes with positive electricity, which is effected by connecting the negative pole with an earth-wire. Upon this latter point we have personally made some observations; and, though we are unable as yet to form a final opinion, there is no doubt that novel and striking results are sometimes to be obtained in this way.

We have said thus much because we think the work that Dr. Radcliffe has done has not met with due and fair appreciation. That this should have been the case among the outsiders is not so surprising; for the dense ignorance which prevails respecting such matters must necessarily make electro-physiology "caviare to the general;" but there has also been what seems to us a decidedly unfair amount of prejudice among scientific electricians. Whether the main theory be true or false, no one who knows what electro-physiological experimentation is can deny that the amount of disinterested labour that Dr. Radcliffe has performed in a most important and little-cultivated field of science has been very great indeed. And as there has been much opposition to his views among professed electricians, it is only

fair to mention that one of the most distinguished cultivators of that branch of science—Mr. Charles Brooke, F.R.S.—accepts Dr. Radcliffe's views, and has publicly stated his opinion of their great value and importance.

Upon points, therefore, where men of the highest technical knowledge are divided in opinion, we might well decline to express any positive judgment. But there are certain parts of the argument which we cannot but think we are right in believing to be decidedly weak, and to these we shall direct attention.

That the phenomena of muscular and nervous electricity, or some of them, may ultimately prove to belong rather to the static than the current variety is an idea which, for a long time past, has seemed to us far from improbable, and the researches of Radcliffe respecting the relative conductivity of tissues, and the phenomena of electrotonus have considerably strengthened the impression. But he does not seem to give us a clear idea of the machinery of muscular contraction, more especially to that of the voluntary kind of contraction. He seems weak in his explanation of the elongating effect of the electric charge upon muscle and nerve fibre, and particularly weak in his demonstration of a contractile process, analogous to that in muscle, in nerve-fibre from which the electricity has been discharged. On the latter point, we are especially, though reluctantly, incredulous; for upon this theory we cannot at all understand how it is that distinct traces of the contraction of the neurilemma, which should follow the discharge of vital electricity, are not uniformly detectable in nerves after death, whereas we need hardly say that, so far as is known, no such appearances are to be found. Our readers must remember that upon Radcliffe's theory, every muscle-fibre or nerve-fibre is a Leyden jar, and the sheath (sarcolemma, neurilemma, or other¹ external and least conductive portion) forms the dielectric (wall of the jar), which separates the two kinds of electricity. The attraction of these opposites for each other exerts a force which compresses the sheath in its thickness and squeezes it out lengthways. At the moment of action during life, or on the departure of electricity after death, contraction must ensue in nerve equally with muscle, on Radcliffe's theory; and the traces of it, one would say, ought to be equally discoverable in nerve as they are in muscle. But we are not aware of post-mortem phenomena in nerve, that can (even with all allowance for difference of tissue) fairly compare with the rigor mortis of muscle. This seems

¹ The objection having been made that unstriped muscular fibre possesses no sarcolemma, Dr. Radcliffe answers that electricity may be first generated within the true contractile portion (the cells), and that the extra-cellular, more or less homogeneous part of the fibre would answer, equally well with true sarcolemma, as a dielectric.

a very formidable difficulty, from which we can at present see no escape. For this, and other obvious reasons, it seems exceedingly difficult to conceive of uniform processes of elongation with charge, and contraction with discharge, of static electricity, in muscle and in nerve tissue.

We are bound to mention distinctly all these physical difficulties that occur to us, and the still greater one of believing that the mere natural elasticity of muscle and sarcolemma could equally generate the forcible, and the deliberate, movements which we witness in different cases of muscular contraction, because on the pathological, and to a considerable extent on the physiological, side of the argument all our personal prejudices are in favour of Radcliffe's teaching. Certainly, in the region of involuntary muscular contraction at least, everywhere we seem to see that the tendency to such movement is inverse to the amount of vital power present; and a precisely parallel series of relations exists between pain and other phenomena of sensory irritation and the standard of vital vigour which the patient exhibits. To the physician who sees much of neuralgia, epilepsy, chorea, and hysteric convulsion, it seems the most natural thing in the world to believe that the *abstraction of some natural energy*, and not any *addition* to it, is the cause of all these violent manifestations of misdirected force. And if the controlling force which preserves physiological equilibrium and rest could be shown to be electrical charge, a way out of many of our difficulties would be found, and a very promising future in the direction of therapeutics would be immediately opened. It is with much reluctance that we must for the present decline to accept Dr. Radcliffe's most ingenious solution of the problem as proven. At the same time we wish to say, in conclusion, that we have personally witnessed the performance of some of the author's experiments, and are quite convinced that he is correct as to some of the most important physical facts that he relates. We were exceedingly struck with the demonstration, which was unmistakable, of the effect of electric charge in elongating a band of india-rubber (coated to resemble a Leyden jar), and the instantaneous re-contraction (by natural elasticity) on the discharge being made. With the same apparatus Radcliffe demonstrates the elongation of the frog's muscle under charge of friction-electricity, and the still more important fact that in *both* the kinds of electrotonus from voltaic current (*cathellectrotonus* as well as *anlectrotonus*) there is greater elongation than with the friction charge, and a more forcible contraction on opening the circuit. The most prejudiced opponent must allow that these facts constitute an exceedingly important discovery.

Clinic of the Month.

On the Treatment of Cancer of the Neck of the Uterus and allied Structures by the Injection and Application of Bromine.—Dr. Wynn Williams, in a paper read before the meeting of the British Association, commenced by making some remarks on the spontaneous removal of malignant tumours, from the study of which he was led on to the injection of bromine into cancerous tumours of the uterus and other parts. He stated that the eight cases published in the last volume of the “Obstetrical Transactions” still continued well. He entered into full details as to the manner of injecting these deposits, and the care required in the use of bromine both as an injection and application, and that before its use the surrounding parts should be well protected by a solution of soda. He exhibited the various instruments he had made for the injection of bromine. He gave the history and successful treatment of a well-selected case of medullary carcinoma of the uterus in the state of disintegration and ulceration by this method. He also gave the particulars of a case of epithelioma of the lower lip which had been previously removed by operation. On the return of the disease the patient was sent to Dr. Wynn Williams, who by two injections of bromine caused the entire and so far permanent removal of the disease. (*Lancet*, Aug. 12, 1871.)

Dr. L. A. Sayre’s Method of treating Hip-Joint Disease.—The following account is given by the reporter of cases of hospital practice for the *Medical Times and Gazette* in one of the July numbers of that journal:—“We have quite recently had the opportunity of meeting Dr. Sayre, during his short visit to this country, at two of our London hospitals, and at one of them—the Middlesex Hospital—we had the satisfaction of hearing him explain his views and illustrate his treatment of cases of hip-joint disease. Dr. Sayre’s hip-extension splint has for some years been known in England; but from ignorance of, or want of sufficient attention to, many little details in the mode of application, it has not met with the success in the hands of others that Dr. Sayre has established for it in his own. Whatever may be the views entertained by different surgeons as to the etiology or

pathology of hip-joint disease, none who have had experience of such cases can have failed to see the ill effects produced upon the general system by the long-continued inactivity which the treatment ordinarily employed necessitates, and to desire some means by which extension and proper rest to the affected joint could be supplied without confinement to the bed and house.

“By long experience, obtained at the Bellevue Hospital, New York, and in practice, and by a thorough knowledge of and attention to the pathology and anatomy of the joint, Dr. Sayre has employed and perfected a splint by which surgeons can obtain these desirable results. He regards the majority of cases of hip-joint disease as the result, not of a strumous or tubercular dyscrasia, but of some local cause—a blow, or twist, or sprain, which, though very slight, may set up an inflammation of the synovial membrane of the joint, or cause a “blood blister” between the end of the bone and its investing interarticular cartilage. This not being observed at the time of its occurrence, is not quieted or subdued by immediate rest, but goes on developing slowly into a grave disease. With these views strongly impressed upon him, he was convinced of the propriety of overcoming the affection by purely local means, instead of relying upon medicinal remedies to correct a supposed scrofulous condition or hereditary defect of the body.

“The familiar and characteristic position of the limb in the second stage of the disease—viz. one of flexion upon the body, abduction and rotation outwards—Dr. Sayre explains by the action of the ilio-femoral or accessory ligament, which, passing over the front of the capsule from the inferior iliac spinous process to the anterior intertrochanteric line of the femur, is intimately blended with it, and keeps it close to the neck of the bone. When the quantity of fluid normally contained in the capsule is increased by inflammation of and effusion into the joint, the capacity of the capsule itself must be increased, and this can only be done by the unfolding of the capsule; hence, the limb is flexed, abducted, and rotated outwards, to take off the pressure or tension of the accessory ligament, and thereby to permit the more complete relaxation of the capsule. That this is the result of an increase of the quantity of fluid in the capsule, Dr. Sayre has proved by injecting quicksilver into a joint after death and after the cessation of rigor mortis.

“But another result of the joint-mischief is an atrophy of the muscles about the joint, accompanied by their contraction. Two conditions of contraction of muscles are recognised—one in which the muscular structure is not incapable of being stretched and extended by force, and the other in which, as after very long-continued want of use, the fibres become irremediably altered and shortened. The former condition Dr. Sayre calls

the "contracted," the other the "contractured" state, and it is this latter which requires in some cases to be overcome by subcutaneous section of the "contractured" muscle before the limb can be brought into its proper position.

"Now, in hip-joint disease the adductor muscles, which become tensely contracted, would draw the limb inwards, and adduct it, did not the distension of the capsule above described prevent this; hence, one of the sources of the acute pain suffered in the second stage of the disease is the conflict between the muscles tending to adduct the thigh, and the resistance produced by the effusion into the joint, which keeps the limb abducted. Another cause of pain is the pressure upon the diseased surface due to the contraction of the muscles around the joint.

"When the capsule ruptures, and the pus escapes into the surrounding tissues, the third stage of the disease has arrived; the pain is often considerably diminished, and the position of the limb is changed. The limb is adducted and drawn inwards; the muscles, in fact, being no longer resisted by the fluid in a distended capsule, have it all their own way. If the opening in the capsule be small, then the change will occur slowly; if large, then rapidly; and this it is which gives rise to the apparent spontaneous luxation of the femur, the occurrence of which Dr. Sayre denies. This so-called luxation, he says, is brought about by an enlargement of the acetabulum, the end of the bone being still contained within its capsule, and not by a slipping of the end of the bone out of the capsule.

"In the diagnosis of the early stage of the disease, Dr. Sayre places much stress upon the dropping of what he terms the string of the buttock—*i.e.* the gluteo-femoral fold—the flexed position of the knee and hip as the child stands bearing the whole of his weight upon the sound limb, and the want of the rectangular decussation of the two imaginary lines, one along the central line of the abdomen, and the other from the anterior superior spinous process on one side to that on the other. In hip-joint disease, even in the early stage, in order to get these lines to cross at right angles, the leg must be flexed. Another point of importance is ascertained by placing the child naked upon a hard bed, floor, or table, when, if there be no disease, the spine will lie along the surface, the popliteal spaces will touch the bed or floor, and the lines will cross at right angles, as already mentioned; but if there be disease of one of the joints, the hand can be passed between the table and the lumbar spines, until the affected limb is flexed on the abdomen, when the arch in the spinal column disappears.

In the treatment of hip-joint cases everything depends upon the extension being kept up continuously and properly. The straightening is to be done by degrees; at first it should be

employed in the line of deformity, and then gradually brought from this into a straight position. The mode of extension used is the weights and pulleys, until the straight position has been obtained, taking care that the point upon which traction is made is above the knee, so as not to strain the ligaments of that joint. Afterwards, the extension-splint is worn during the day, and the weights and pulleys are applied during the night.

"This splint consists of two pieces of steel, the ends of which are made to slide one within the other by means of a key, thus forming an upright extending along the outside of the thigh from two inches above the condyles of the femur to the crest of the ilium, the length of which can be increased or diminished, as greater or less extension is required. It ends below in a little roller, and a buckler is attached to its outer side, by which the webbing keeping it in place is fixed. Two flattened arched pieces, at an interval of two inches, pass from the lower portion of the steel rod over the front of the thigh to another short straight piece along the inside of the thigh, which connects the two cross-pieces, and is parallel with the outer and longer rod. A roller and buckle are fitted similarly to the lower end of this short inner steel rod, and the whole is fixed around the thigh by a strap which passes over the posterior half of the circumference from the outer to the inner straight rods. At the upper extremity a concave plate of steel well padded and about three inches long and one broad is attached by a ball and socket-joint; this is adjusted to the pelvis immediately below the crest of the ilium. To each end of this plate the ends of a perineal pad are fastened by buckles, so that the counter-extension is made on the perineum, and the child supports its weight on this perineal pad (instead of on the hip-joint), from which it is transmitted by the steel upright to the condyles of the femur.

"In applying the instrument, two strips of strong inelastic adhesive plaster—that spread on moleskin Dr. Sayre prefers—two or three inches wide, and long enough to extend from just above the ankle to three inches above the knee, are fixed to the leg without warming the plaster; and after removing all loose scarf skin, by thoroughly washing and wiping the limb, some webbing should be sewed fast to the lower end of the plaster, for the purpose of fixing the pulleys for night extension, and then the plaster is to be fixed with a roller carried from just above the ankle to above the knee. When the condyles are reached with the roller, the ends of the strips of plaster are to be turned down, and the roller applied back over the sticking surfaces. By these means the plaster is first secured by the roller, and then the roller is made firm by the plaster, so that the whole can be made to remain in place for three or four months. So much to provide for night extension. Next two

fan-shaped pieces of plaster, with webbing (just wide enough to pass over the rollers and fit the buckles at the end of the uprights of the splint) attached to their narrow ends, are applied to the sides of the thighs, so that the broad extremities are towards the pelvis, and the pointed ends opposite the place upon which the lower part of the instrument is to be fixed. The plaster is then covered with a roller, and the upper ends of it having been cut into strips, are turned back strip by strip over the bandage, and so made to hold the bandage in its place.

"The instrument is then placed over the thigh, and the lower end fixed by being buckled to the webbing attached to the fan-shaped pieces of plaster, and by buckling the strap which passes behind the thigh; then the perineal pad is fastened to the plate below the crest of the ilium; and, lastly, extension is made by lengthening the steel uprights by means of the key. After the adjustment of the splint, the child may be allowed to stand and walk; but it will be often necessary that, at first, a thick-soled boot be worn on the sound side, as, owing to the obliquity of the pelvis, the well leg will for a time be apparently shorter than the extended diseased one.

"We had the satisfaction of seeing this treatment applied to a little boy who had all the symptoms of the second stage of the disease well marked, and in a few minutes after the adjustment of the splint the child was quite free from pain, and could walk and sit with no other inconvenience than was caused by the stiffness of the plaster on first being applied.

"The advantages of this instrument are beyond all argument. By its aid, where properly adjusted, recovery can be made from this tedious and destructive disease without the deformity of an ankylosed joint, and without the constitution being undermined by long confinement.

"Instruments the same in principle and to obtain the same results are made for the knee- and ankle-joints; and by means of some 'wire breeches,' Dr. Sayre is enabled to send patients who are submitted to exsection of the joint, when that operation is required for the third stage of hip-joint disease, into the open air a day or two after they have undergone the operation."

Treatment of Pneumothorax by Aspiration.—Two cases of Pneumothorax, under the care of Dr. Ramskill, are reported as having been thus treated with success. In the first case, the patient was immediately rescued by the operation from a condition of great suffering and danger, and placed in ease and safety, from which there was no relapse. In the second, from the nature of the disease causing the pneumothorax cure was im-

possible; but the distressing dyspnœa was removed, and the passage from life made easy. There appears to be no drawback to the operation, which is itself exceedingly trivial and painless. Its good effects are immediate. There was recently in the hospital under Dr. Ramskill's care a case of hydropneumothorax of some standing. This was treated by puncture, and an ordinary trocar and a drainage tube were left in. Unfortunately the operation was followed by extravasation of air into the cellular tissue around the wound, and ultimately into the whole subcutaneous cellular tissue, causing the death of the patient. In the first of the two here recorded cases there was at the time of the operation slight extravasation of air into the cellular tissue around the wound, which is attributed to an accident in the operation. Owing to the puncture being so small the orifice closed in the course of an hour or two, and no further escape took place; what little air there was in the cellular tissue was absorbed in the course of the next day. In the second case there was no surgical emphysema whatever. The only precautions necessary in the operation are—first to pass the needle horizontally in the centre of the intercostal space so as to avoid the ribs, for the cases in which surgical emphysema has followed have been those in which the needle has glanced off the rib into the cellular tissue; and, secondly, only to pass the needle sufficiently far to reach the air in the pleural cavity, for if the needle project far into the pleural cavity when the lung expands the visceral layer of the pleura comes in contact with it, and considerable pain is caused. The first case probably arose from rupture of an emphysematous air vesicle; the dyspnœa was very sudden and great. The smallest needle of the instrument was speedily introduced at the ninth intercostal space of the right side, close to the angles of the ribs. After one failure the needle entered the pleural cavity, and air rushed into the body of the syringe. The air was pumped out until no more would come, and it was then found that between sixty and seventy ounces by measure had been evacuated. The previously existing amphoric breathing was then found to have disappeared. A little air was perceived in the cellular tissue around the seat of the function; but this excited no alarm, and no compress or other application was placed over the spot. The patient, after the administration of half a grain of morphia, slept well through the night, and made a good recovery. The second case was one of pneumothorax in a phthisical patient, and the relief obtained, though great, was, of course, only temporary. (*Lancet*, Aug. 19, 1871.)

Extracts from British and Foreign Journals.

The Galvanic Current as an Agent to effect Absorption.—Dr. Ludwig Seeger, who terms himself Electro-therapeutist to the hospital at Wieden, makes the following observations on the effects of the galvanic current in promoting absorption. In what mode pathological products undergo retrogressive change has not hitherto been satisfactorily explained, and it will probably be many years before it is known how material that has been deposited in any tissue as a consequence of disease is removed from it. The means that have been adopted are various, and differ with the nature of the disease and its seat, being sometimes the administration of drugs, sometimes the application of pressure, sometimes the employment of baths and hydropathy, sometimes the adoption of abstinence, and sometimes, lastly, the application of electricity. Electricity, when used for the purpose of promoting the absorption of diseased products, is usually applied in the form of the constant current; and either locally over the affected part, without injury to the skin, with ordinary rheophores (cutaneous method), or by penetrating the affected part with armed needles (percutaneous method). Surprisingly good results sometimes follow these two modes of treatment. In reference to the effects of the cutaneous application of either, but especially of the zinc pole of the galvanic current, the first effects produced are those of irritation, indicated by redness, pain, and, if the excited spot be of some size, by well-marked subjective and objective elevation of temperature. (The current here alluded to is that obtained from sixteen elements of the Siemens-Halske construction, the duration of application effected by the ordinary rheophores being a few minutes.) These phenomena of irritation have nothing peculiar about them, and in nowise differ from those occasioned by friction or heat; in all cases simple hyperæmia is present. The effects of the galvanic current on the capillary circulation are rendered very obvious when applied to cyanotic portions of skin, as, for example, to a part where a blister-plaster has been for some time applied. Here, a minute after the application of the current, the cyanosis disappears at the chiefly excited spot (zinc

pole), being replaced by a hyperæmic tint, which is nearly co-equal in extent with the surface of contact of the current, whilst the neighbouring parts in which the circulation is diminished are not in the least degree changed. The vaso-motor nerves become therefore stimulated by the irritation to greater activity, and the circulation becomes more intense. It is remarkable, further, that diseased parts of the skin, though they may present no abnormal appearances, usually redden earlier than the neighbouring sound parts. Now, just as a hyperæmic condition is established in the skin—for example, over a chronic exudation—as the result of the action of the galvanic current, we must admit that in consequence of the excessive flow of blood towards the surface, a brisker current must be established in the deeper regions. The particles lying in immediate proximity to those parts which, in consequence of unfavourable conditions of the circulation, have been more or less quiescent, are brought into movement, drawn forth, and pushed onwards; and thus, if the process is sufficiently frequently repeated, absorption is excited through the veins. Probably, also, the electric stimulus acts upon the walls of the blood-vessels in the same manner as upon the contractile elements of the lymphatics; and, as a consequence, the movement of their contents is promoted. Lastly, it is not improbable that a nerve that has been lowered in tone is rendered more functionally active, and thus the trophic processes are promoted and exhibited in interstitial absorption. Proceeding on these grounds, Dr. Seeger sought how, without applying many elements and without injuring the skin, he could produce the greatest possible excitation of the skin, and thus call forth the most decided and persistent hyperæmia, and at the same time to affect the nerves supplying the more central parts of the affected part. To effect this he constructed a rheophore (connected with the zinc pole) of a metallic pencil or brush, around which cotton wool was wound, and which was applied in the moist state. This was applied vertically over the affected part, and was found both speedily and in a very high degree to arouse both the sensory and motor nerves, even with a number of elements that were almost, if not entirely, inoperative with the ordinary rheophores. He found it advisable, however, not to apply it for more than a few seconds at a time to any given spot, as it will readily induce the development of a crop of minute pustules. The rapidity with which these pustules will develop is extraordinarily great. Dr. Seeger states that with fifteen elements, and such a metal brush, a dark spot appears after the lapse of a minute; and after three minutes a pustule forms, which is distinct, elevated, and yellow in ten minutes. In the middle of this the original dark point can be seen, a little depressed, and with a lens a small extravasation of blood can be seen surrounding it.

Injection of Ammonia in poisoning by Chloroform.—

A case is recorded by Dr. Neild, of Melbourne, in which a man swallowed an ounce of chloroform after a debauch of three weeks, on some days of which he drank as much as three bottles of brandy a day. A quarter of an hour after taking the chloroform, a surgeon administered an emetic of salt and water, which had the effect of causing him to vomit some portion of the chloroform. He then sank rapidly into a state of insensibility; the breathing was laboured, with frothy mucus in the air-passages; the pulse was small, fluttering, and irregular; the eyelids closed, and pupils widely dilated; the skin cold, clammy, and pale; complete anæsthesia was present. The stomach-pump was used, and hot-water bottles applied to the feet and sides, but the breathing became more laboured and the coma profound. It was determined at once to inject ammonia. The median cephalic vein of the left arm was selected, and half a drachm of the dilute liq. ammoniæ (B. P. sp. gr. .959) was injected. The volume of the pulse was immediately augmented; its pulsations became more regular, and the respiration somewhat quickened. On raising the eyelid, the pupil, previously immoveable, immediately contracted. The injection was repeated in about twenty minutes into the same vein, the same good reaction following. In twenty minutes more another half-drachm was injected into the vein of the right arm. The pulse fell to 120, and increased in volume; much frothy mucus was expelled, and the warmth of the body began to return. In half an hour the symptoms had in all respects improved, and another half-drachm of the liq. ammoniæ was injected into the left arm. Further improvement immediately followed, and in a few minutes more he moved his head when the eyeball was touched. Six hours after the taking of the poison he made efforts to speak, and a little brandy and water was given to him, but he relapsed into a comatose state. Suddenly he made an effort to sit up, and the bowels then began to act freely. Twelve hours after he was removed to his residence. During the day he was sick, and complained of dryness of the mouth and throat. He lived, as far as can be made out from the account given, which is obscure on this point, thirty-two hours, death being preceded for a short time by incoherence and illusions. A post-mortem examination was made, which showed the presence of cirrhosis of the liver in an early stage. Heart small and flabby; the mucous membrane of the stomach with congestion in patches. Dr. Neild entertains no doubt that in a fairly healthy subject, uncomplicated with the depressing effect of another narcotic poison, the recovery observed after the injection of the ammonia would have been permanent and complete, and at all events the effects

produced were sufficiently promising to justify a repetition of the procedure. (*Australian Medical Journal*, April 1871.)

The Therapeutic Properties of Arsenic.—This subject has been much discussed, as we learn from the reports published in the *Journal de Médecine*, in the Académie Royale de Médecine de Paris, in November last, in consequence of the presentation of two papers, one by M. Papillaud (de Sanjon) on the arseniate of antimony and its employment in cardiac diseases; the other by M. Mousnier on the preparations of the arseniate of antimony that ought to be introduced into the Codex. Amongst the more important facts elicited in the discussion we may mention the following. M. Briquet stated that he had made experiments with a hydrostatic apparatus designed to measure the force of the heart, or the amount of arterial tension, and he had arrived at the conclusion that the salts of arsenic exert a directly enfeebling (*hyposthenisante*) action on the heart. M. Hardy believed that the cases of palpitation of the heart attributed by M. Papillaud to disease of that organ, and cured by the administration of arseniate of antimony, were probably cases of chloro-anæmia, in which disease clinical observation shows the value of arsenical preparations. They constitute tonic agents, and act similarly to the ferruginous salts. It is, moreover, well known that arsenious acid, arseniate of soda, arseniate of antimony, &c., exert quite a special action on the heart and upon the lungs. In asthma in particular their employment is followed by the best effects. M. Delpech observed that he had obtained good results from arsenical preparations in certain cases of pure nervous affection quite irrespective of a chloro-anæmic state, such as angina pectoris and asthma. M. Sée had no doubt of the action of arsenious acid on the respiration, and of its beneficial effects in asthma. He could not, however, agree with those who held that it possessed a sedative action on the heart. He did not think that it had any direct effect on the central organ of the circulation; if any, however, it was rather an accelerative than a retarding agency. He believed that it acted on the blood capillaries, the circulation through which it promotes, and it was interesting to observe that it appeared to exercise an elective influence on the capillaries of the anterior and superior part of the body, especially on those of the face and of the brain, and which was indicated in those who used arsenic by the rosy colour of their face. This results from paralysis of the capillaries, similar to that produced by section of the great sympathetic in the well-known experiment of M. Brown-Séquard. This paralysis has, as a consequence, an increase in the frequency of the movements of the heart, which is in absolute contradiction to the supposed sedative action of the metal. A third point relates to

the reconstituent action of arsenical preparations. According to M. Sée, arsenic is only an indirect reconstituent. It does not act like the preparations of iron, which effect a direct increase in the number of the blood corpuscles, as is seen to take place rapidly in chlorosis and in chloro-anæmia. Arsenic is not a re-constituent of this kind, but it diminishes disintegration; it is an anti-disintegrator (*anti-déperditeur*). He thought that these were well-known facts which did not allow us to ignore the beneficial effects of arseniate of antimony in cardiac diseases, but he thought such good effects were attributable, not to the arsenic, but to the antimony of this preparation, since it is known that antimony has a very well-marked action on the heart. M. Gubler pointed out that M. Sée had some years ago expressed different opinions in the *Nouveau Dictionnaire de Médecine*, but that he himself held, in his well-known work, that arsenic was a "topical irritant and escharotic—a sharpener of the appetite—a moderator of the respiratory combustion, and by this means capable of moderating disintegration of tissue, of causing an accumulation of fat in the economy, of calming febrile erethism and the respiratory movements." In regard to the statements made by various German writers, that arsenic diminishes the waste of the tissues because it diminishes the excretion of urea, M. Gubler pointed out that the experiments were not sufficiently numerous to be very reliable; and on the other hand he thought the quantity of urea excreted by no means necessarily expresses the amount of disintegration, or that of the respiratory combustion. It might be that arsenic is opposed to the secretion of urea, as iodine, on the contrary, favours the passage of iron by the salivary glands. At the same time M. Gubler fully acknowledged the favourable influence exerted by arsenic on certain forms of dyspnoea, in certain kinds of asthma in man, and in the "*pousse*" of horses, and he compared it with that of *migraine*. Those, he said, who had experienced moderately severe attacks of this affection were aware that under its influence they felt altogether lighter, more apt for all kinds of active exercise, as running up a staircase, &c., and it was a remarkable circumstance that a kind of migraine is sometimes one of the symptoms of intolerance of the system for arsenic. Commenting on the action of arsenic on the blood, he observed that it had been compared to that of oxide of carbon, but this gas expelled all oxygen from the blood corpuscles, whereas arsenic was supposed (by M. Sée at least) to fix the oxygen and prevent it from escaping; hence he did not see how any parallel could be drawn between the two. Instead of the term *médicament d'épargne*, or anti-disintegrator, applied by M. Sée to arsenic, and which was not new, he would propose that of "dynamophore." The vaso-motor paralysis, to which allusion

had been made by M. Sée, was not proven, and M. Hardy had already refuted this doctrine in showing that arsenic may become the cause of anaphrodisia, and even of paraplegia—accidents of which the lower parts of the body are the seat. The sedative action of arsenic on the heart is observed under a great variety of circumstances; this fact is certain, but it is reasonable to ask by what means this result is brought about, whether it is direct or indirect. Apart from its irritant and escharotic action, arsenic, M. Gubler believes, behaves itself as if it diminished respiratory combustion, or that which he terms hæmatocausis, and, as a consequence, disintegration. In accordance with this are many experiments, both on man and animals, showing that there is a diminution in the amount of carbonic acid and of urea eliminated from the body. The mechanism by which this is accomplished is still unknown. It may, however, reasonably be ascribed to a direct action of the metal on the blood and on the nervous system, the hæmoglobin of the corpuscles under the influence of the metal fixing the oxygen more firmly than in the normal state. If the dose of arsenic be too large, or its use too prolonged, the results are very different. In this case, which may be termed *arsenicism*, the destruction of the globules is accelerated, they diminish in number, and the phenomena of paralysis are observed in place of increase of muscular innervation. M. Gubler concludes by remarking that in a physiological and therapeutical point of view the supposed retarding action of arsenic on the movements of the heart has not been demonstrated, but M. Sée has undoubtedly shown that it diminishes the cardiac impulses and the arterial tension, as measured by the manometer. Fever, however, is not indicated alone by the augmentation of the cardiac beats, but rather by the diminution of the arterial tension. Arsenic thus becomes a remarkable febrifuge. Its principal action is to produce a temporary arrest of the organic combustions. It thus occasions a diminution of the animal heat, and consequently of fever. In this point of view, however, arsenic is in no way comparable to sulphate of quinine, veratria, or digitalis. Arsenic diminishes and extinguishes fever by interfering with the activity of organic combustion. (*Journal de Médecine*, Mars 1871.)

Impetigo (faciei) Contagiosa and its Fungus.—Dr. Moriz Kohn, of Vienna, states that for many years he has been accustomed to meet with cases to which the terms *eczema impetiginosum* was commonly applied, occurring for the most part in young people, and especially affecting the skin of the face, the hairy scalp, and the cervical region. This affection, however, he found, on careful examination, to present many points of distinction from acute *eczema*. In this latter affection

we find a dense or more scattered eruption of little knots situated on a diffusely reddened and inflamed surface of the skin (eczema papulosum), which when fully developed become vesicles (eczema vesiculosum). These burst, and a red, moist surface then appears, covered by a thin mucous layer, with hyperæmic papillæ (eczema rubrum, madidans); the fluid drying up after a time to yellow crusts (eczema impetiginosum). Finally the scabs drop off, and the part of the skin affected remains red and scaly, though covered with epidermis; a condition named by authors eczema squamosum, or by many pityriasis ruber. The principal clusters in eczema are not very sharply defined, the edges gradually passing into sound skin, with scattered knots or vesicles. The disease under consideration (impetigo contagiosa), however, presents very different characters. Here separate scattered vesicles arise, varying in size from that of a pin's head to that of a small bean, and filled with a clear fluid. The investing membrane of these vesicles is exceedingly thin, the contents on escaping feel slippery between the fingers, and dry up to straw-yellow or golden scabs, the size of the original vesicle. On removing these the surface of the skin appears destitute of epidermis, and discharging fresh fluid. If the scabs are allowed to remain they become of a dark brown colour and fall off in from five to six days, leaving the surface a bluish red colour, but *not scaly*. The margins of the scabs are *sharply* defined, and form small segments of circles. The differences between the two affections may be thus summed up. In acute eczema, on diffusely reddened and swollen (inflamed) skin, clusters of vesicles form; whilst in impetigo contagiosa the vesicles are isolated, and the skin beneath is not inflamed or swollen, and the characters of the scabs are different. In eczema the healing process is accompanied by a scaly condition of the skin, which is not the case in impetigo. Lastly in impetigo there is no itching, and therefore none of the effects of scratching, such as are always seen in eczema. Dr. Kohn proceeds to point out that not unfrequently cases occur which seem to show that so-called eczema is contagious, several members of the same family being affected; but he failed to ascertain the presence of a fungus in many cases of eczema that he examined. At length, however, in a case of his (impetigo contagiosa) he found abundant mycelium threads with four fructification organs, which last formed siliqua-like structures of considerable length and corresponding breadth, presented a double colour and several spiral septa in each of the divisions, between which was a highly refractile oval nucleus with nucleolus. The delicacy of the mycelia and the characters of the organs of fructification showed that it belonged to none of the hitherto described forms of mycosis of the skin, such as favus,

herpes tonsurans, eczema marginatum, sycosis parasitaria, pityriasis versicolor. This form of impetigo runs an acute course and heals up spontaneously in the course of from three to six weeks, without any danger of relapse. It occurs coincidently on various parts of the face and neck, in the form of scattered vesicles, or cluster of vesicles, which soon dry up, forming scabs, that fall off from five to eight days. No treatment is required, but the application of a little simple cerate facilitates the separation of the scabs. (*Wiener Medizinische Presse*, June 11, 1871.)

Rules for Confinement in the Vienna Lying-in Hospital.—The following extract is from an article by Dr. Frank Wells, in the *Medical and Surgical Reporter*, where it is introduced as an excerpt from the *Boston Medical and Surgical Journal*.

On admission the patients are examined by one of the midwives, in order to ascertain how far labour has progressed, and if not too far, and the patient desires it, she is allowed to get up and walk about the room.

(All examinations are made in this school with the patient lying upon her back, which seems to be the most convenient position for this purpose.)

As soon as the head has passed the promontory of the sacrum, the woman is placed upon her left side, with the right thigh flexed upon the abdomen, and the right leg resting up on the sole of the foot. The accoucheur then stations himself opposite the patient's back, and passes his left hand over her abdomen, and between the thighs, grasping with it the head of the child as it advances, while his right hand supports the perineum. Every patient, and particularly every primipara, is delivered with the perineum and vulva exposed. Not alone in the hospital, but in private practice, is it considered of the utmost importance that the accoucheur should see the parts during the birth of the child. For it is the custom, as soon as it becomes obvious that the perineum must rupture, to make short lateral incisions into the labia, thus taking the strain off the perineum. This precaution, of course, can only be taken when the accoucheur has a full view of the different parts. Stress, too, is laid upon the importance of forcibly keeping the child's head back during the severe pains, allowing it to come forward only during the lesser ones. This, also, is accomplished much better when the hands are not hampered by the bed-clothes.

It would seem such a self-evident fact that the perineum should be supported during the birth of the child, that a reference to this subject might be considered altogether needless. In view, however, of the mistaken opinions in regard to this pre-

caution which are from time to time advanced, I cannot refrain from mentioning how strictly this rule is enforced in Vienna, it being one of the fundamental principles of a successful delivery.

After the birth of the child the cord (when it has ceased pulsating) is tied in two places with lawyer's tape—six and seven inches from the child's abdomen, and then cut between the two knots. As the sooner the uterus is freed from its contents and commences to contract the better it is for the patient, so immediately after the cord has been cut, firm, deep pressure is made with the hand over the seat of the placenta in order to expel it forcibly. If the first attempt is unsuccessful, after waiting a few minutes another trial is made. If, however, after three or four attempts, the placenta is still retained, no further trial to remove it is made for some two hours. At the end of this time, if the patient feels at all worried or uncomfortable, the hand is introduced into the cavity of the uterus, and its contents detached from the walls.

After the cord has been bandaged, and the child washed and dressed, it is laid back into the bed with the mother, and immediately allowed to go to the breast, which, in the opinion of this school, greatly diminishes the chances of a milk abscess.

Whatever may be the cause, there are certainly but few cases of this painful affection to be met with in the wards. In fact, out of 7,860 patients delivered in 1867, 14 only suffered from abscess of the breast.

A few hours after delivery the patients are carried, together with their children, into the next division of the clinic, where they remain until they leave the hospital, unless some sickness supervenes, when they are removed to the wards set apart for this purpose.

The child always lies in the bed with its mother, except in the case of twins, or when the mother is extremely weak, when it occupies a small crib standing by the side of the bed. This arrangement, however, is not one of choice, but of economy, since it is really considered preferable that the child should occupy a separate bed, in order to escape any danger of being smothered by the mother rolling upon it. This is an accident, however, that seldom happens.

The women receive no baths either on entering or during their stay in the hospital, although all discharges are carefully washed off as often as it becomes necessary.

Their diet, up to the time of delivery, is not restricted, but afterward the quantity and quality of it is regulated as follows:

Until the fourth day after delivery some simple broth or soup.

4th day.—Milk gruel ($\frac{1}{4}$ portion), and a German roll (*semel*).

5th and 6th days.—Some farinaceous compound ($\frac{1}{4}$ portion), and two rolls.

7th day.—Minced meat of some kind ($\frac{1}{2}$ portion), and three rolls.

8th day.—Same as on the fifth day ($\frac{1}{2}$ portion), and three rolls.

9th day.—Beef for the first time.

On the ninth day the patients are discharged, when, if they desire, they can apply for admission to the Foundling Hospital.

The Paralysis of Infancy.—This condition is often also named essential or spinal paralysis, and, according to the numerous observations of Professor Richard Volkmann, especially affects children of tender years, as, for example, at ages varying from the seventh month to the end of the second year. This paralysis often supervenes with distinct indications of cerebral hyperæmia, or even with slight neuralgic symptoms, and occasionally after an attack of convulsions. Some children only experience a day or two of malaise, prior to its occurrence; whilst in others it is noticed by the parents or friends without their being able to state exactly how or when it first made its appearance. In by far the greatest number of cases, one limb only, and usually the foot (neuroplegia), is affected, but paraplegia also often occurs, or hemiplegia, or even paralysis of all four extremities. The paralysis of the limb affected is for the most part complete, or nearly complete; but after the lapse of a few weeks partial recovery is established, which is very characteristic of the paralysis of infancy. In the course of some weeks it becomes evident which portions of the limbs or what muscles will be persistently affected, and which not. The affection usually remains stationary, and after six months or a year no further change may be anticipated. In rare instances, it happens that the paralysis remains stationary from the commencement; whilst in other equally rare instances again it happens that all the muscles regain their power. The sensibility of the skin is not disturbed in infantile paralysis, nor is any change noticeable in the performance of the functions of the bladder, of the intestines, or of the generative organs. Nor is the development of the intellect interfered with. The treatment of this affection is very ineffectual. Electricity is useless, since the excitability of the muscles is lost in such cases with extraordinary rapidity. And inasmuch as the excitability of the muscles is commonly quickly restored in cases of cerebral paralysis, we are fairly justified in regarding the spinal cord as the seat of the disease. Treatment directed to the secondary disturbances consequent on this affection is far more effective. Amongst these secondary affections defective nutrition of the limb is especially to be mentioned, the limb remaining perhaps one-half to one inch or more shorter and smaller in circumference than the other. That this atrophy is not exclusively the result of want of use of the limb is shown

by the circumstance that it still remains to some extent even when the muscles have entirely recovered their power. Another bad result of the primary disease is seen in the so-called paralytic contractions. By far the majority of all club feet and deformities of these extremities developing soon after birth are of a paralytic nature, and referable to infantile paralysis. It may be asked, how do these paralytic contractions occur? Formerly it was considered to be due to the action of the non-paralysed and antagonistic muscles. The contraction gradually resulted from the influence of the tone of the sound muscles. But the existence of muscular tone requires proof, and many facts are in opposition to its existence, as, for example, the swinging of the arm at the shoulder and elbow joints in walking. Werner, an opponent of muscular tone, explains the occurrence of contractions, by the fact that non-paralysed muscles undergo active contraction, but that their paralysed antagonists cannot again extend themselves, and that consequently the former are frequently, and for long periods, in a state of shortening, which ultimately becomes persistent. The researches of Hueter and Volkmann, however, show that the deformity does not in many instances follow or answer to the scheme of antagonistic action of muscles. They observed contractions in limbs that were completely paralysed, and also similar deformities on the side of the paralysed muscles. It would hence appear that the deformities in question cannot, in many instances at least, be attributed to muscular action. Hueter points out that the human foot, left to the action of gravity alone, assumes the form and position of a slight degree of club-foot (plantarflexion, supination, adduction). Not unfrequently also in fractures of the lower extremities, where sufficient care has not been taken in reference to the position of the foot, well-marked club-foot may be seen to be produced, simply by the weight of the foot itself. The weight of the foot therefore clearly constitutes an important factum in the development of deformities. The knee and the hip joint are over-stretched in paralysed legs, because it is only in a position of extreme extension, in which the inhibitory physiological apparatus (ligaments, bones, &c.) are brought into operation, that a sure support in walking can be obtained. Hence in process of time, the leg becomes concave anteriorly—*genu recurvatum*—while the hip-joint acquires an abnormal mobility in all directions, owing to the relaxation of the ligamentum Bertini. Thus it is seen that three mechanical movements are in operation to produce paralytic deformities—the proper weight of the part affected, the abnormal weighing experienced during use, and lastly the impossibility of setting aside a position of the limb brought about by the action of the non-paralysed muscles. By a correct appreciation of these three movements, every case may receive an

explanation. The pes equino-varus occurs in paralysed children if they are unable to walk. Hueter has shown that this deformity may easily originate in children by the mere weight of the foot. If the child treads on the paralysed foot, he presses the sole flat, and a pes valgus occurs. If he places the paralysed foot far forward, he touches the ground with a part of the heel, which is not planted on the ground in natural walking, but is situated above and behind near the insertion of the Tendon Achilles. In such case the weight of the body presses the calcaneus forwards, and the very form of the bones may undergo a change. This is the mode of origin of the pes calcaneus. The conditions met with in the upper extremity are of a simpler nature. In the case of the elbow joint the power of performing supination is usually simply lost, since their action is never performed by paralysed arms. In the case of the shoulder-joint, elevation is limited by shortening of the pectoralis and latissimus dorsi. In the case of the hand, contractions of the fingers constantly occur, and it is a matter of indifference whether the extensors or the flexors are thus weakest. It depends on the elastic tension of the ligaments and muscles upon the position of the articulatory surfaces, &c., which, under normal conditions, and even in the dead subject, maintain the fingers in the so-called "mean position" (slight flexion). It is a matter of great importance that these deformities should be, as far as possible, anticipated and prevented, and with the latter object in view the child should be made to walk as soon as possible. This can always be accomplished by well-adapted supporting apparatus. Crutches, however, should be avoided. The gait of the child is to be carefully watched, and all commencing deformities met by an iron applied on the inner or outer side of the leg by a sole raised on the inner or outer side, or by the appropriate application of bandages or elastic straps. Deformities of longer standing and more marked character must be remedied under chloroform, and by the application of plaster-of-Paris bandages. Tenotomy should be avoided as much as possible, since the action of such operation can only be to impair still more the weakened muscles. (*Aerztliches Literaturblatt*, No. 5, 1871).

Treatment of Eczema of the Ear.—Dr. S. John Rossa, of New York, in a Clinical Lecture on this disease, remarks that eczema of the ear seems to occur more frequently among females than males, but it does occur, of course, in either sex. The symptoms are the same as those of eczema in other parts of the body, with some peculiar to the ear. They are redness, swelling, and the formation of vesicles which become pustular, and which finally cover the whole region with unsightly crusts, from which a discharge occurs. The auricle becomes a misshapen mass,

while the swelling and incrustation of the integument lining the auditory passage and membrana tympani impair the hearing to a serious extent. Fulness and noise in the ears are then added to the patient's other symptoms, and the condition is unpleasant in the highest degree. The disease, when left to itself, is apt to have a very chronic course, and yet it is very amenable to proper treatment. The causes of eczema are not very clear. He has usually observed it in persons of weak constitutions, and not among the strong and vigorous. It rarely occurs upon the auricle alone, but it is usually found in conjunction with the same disease on other parts of the body, most frequently in conjunction with eczema of the face and head, although it sometimes occurs on the auricle and in the meatus alone.¹

According to Ausspitz, formerly an assistant to Hebra, the great dermatologist of Vienna, eczema of the ear differs from the same disease as it appears in other parts of the body, in occurring with a greater amount of swelling and secretion of a serous fluid than is usual, together with the more frequent appearance of fissures in the tissue. The treatment of eczema is simple, and usually he has found the results very good. The advice of Ausspitz, to do as little as possible in the acute form, is excellent. The auricle should be kept from the air. This may be accomplished by the use of oils, powders, or even by a plaster-of-Paris bandage. A good application is the formula of Ausspitz.

R.	Flor. zinci, ʒij.	
	Pulv. alum.	} āā ʒj.
	Amyli pulv. ;	
M.	Ft. pulv.	

This powder is dusted over the affected portion with a camel's hair brush. If the auricle be excoriated and sensitive, astringent solutions of sulphate of zinc may be used.

At the same time with this local treatment, as in all other diseases, the physician should carefully consider the general state of the patient, and in this a cause for the eczema may often be found, which being removed by appropriate management will prevent a relapse of the affection.

Eczema of the auricle and auditory canal is not often brought under the notice of the surgeon until it has become chronic. Its treatment then may require the greatest patience and care. The treatment which Dr. Rossa has found usually successful, is the following:—The auricle is carefully poulticed with flax-seed meal until all the crusts can be removed, and is then anointed with an ointment of the sulphate of iron and simple cerate, in the proportions of from one to two grains of the former to a

¹ Archiv für Ohrenheilkunde, Bd. I.

drachm of the latter. This ointment is applied as often as may be necessary to keep the part constantly anointed until the vesicles have ceased to form.

The local treatment of the auditory canal is, he thinks, often unsuccessful from the want of the personal attention of the physician. No one who is unable to examine the external opening of the ear down to the *membrana tympani* can tell when it is or is not clean. Without a thorough removal of the material thrown off in an eczema, there can be no cure. An eczematous auricle may perhaps recover spontaneously; an eczematous auditory canal, probably, never. The material thrown off from the inflamed integument collects in the narrow passage, and by mechanical irritation increases the swelling, and produces the most troublesome symptoms of deafness. The auditory canal should be therefore carefully cleansed every day with the syringe and angular forceps or cotton holder under a good illumination with the otoscope, and then an appropriate *liquid* application be made. A liquid preparation is to be preferred to an unctuous one, for the simple reason that an ointment will again block up the passage and thus prevent the patient's securing the full benefit to his hearing power which the removal of the epidermis, crusts, and pus has produced. Dr. Rossa very sensibly remarks that failures will often occur if the surgeon does not carry out his own advice, it should never be confided to the hands of the parents or attendants of the patient, for they will be incompetent assistants.

The warm water douche is very valuable in the treatment of chronic eczema of the canal. It allays itching sensations, and is usually very grateful to the patient. The use of the douche may be entrusted to the patient himself. It is well to use it very often in the early periods of treatment, say once an hour. The warm water is a direct antiphlogistic; he has seen its use alone cure most obstinate cases of inflammation of the canal.

The only specific remedy for internal use in chronic eczema of the auricle, as well as that of the same disease in other parts of the body, is arsenic. In very chronic cases he usually gives Fowler's solution in connection with the local treatment, and it is usually of great avail.

He is, he says, aware of various other modes of treating eczema, and of the almost innumerable applications which are recommended, but he feels confident that that which he has sketched will serve its purpose so well, as, modified by individual judgment in practice, to fulfil all reasonable requirements. (*Medical Record*, No. 124.)

Notes and Queries.

DEPARTMENT OF ANALYSIS AND INVENTIONS.

LIME-FRUIT JUICE.—Sturge's Montserrat Company, Limited.

Sample bought at Messrs. Corbyn, Stracy, and Wright, 7, Poultry, E.C. Label and capsule bearing the trade mark of the consignees.

The juice is perfectly clear and bright and of a deep gold colour. Taste and flavour good. It contains in 100 volumes—

	Parts by weight.
Free acid calculated as citric acid =	6·528
Combined citric acid	0·128
Sugar	0·300
Mineral matter	0·340
Mucilage, &c.	1·528
<hr/>	
Total solids	8·824
Specific gravity at 15·5 =	1035·61

The free acid present is citric acid with a small proportion of malic acid. The juice is quite free from alcohol.

This juice represents, therefore, a pure and unadulterated lime-juice, but the proportion of acid present is somewhat low.

The above lime-juice was selected for analysis as an exceedingly important article of hygiene, expressly for the purpose of testing whether the maker was sustaining the character of purity which he gave to his first batches of lime-juice, and which obtained favourable notice in the medical journals. We are glad he has stood the test so well, for we fear that sometimes the makers of articles of food or medicine no sooner obtain good certificates than they take advantage of this to sell inferior samples.

CORRESPONDENCE.

TREATMENT OF CROUP BY LACTIC ACID SPRAY, APPLIED THROUGH THE GLOTTIS, BY N. L. BUTLER, M.D., L.R.C.P.S. Dublin.—“On the first instant I was called to see M. M., aet. 14 months, whom I found to be suffering from a severe attack of croup. I ascer-

tained from her mother that the symptoms had appeared two days previously, but were of so trivial a nature that she did not deem it necessary to call in the aid of a medical man. She having had experience of the disease in two of her other children, had, however, administered two or three warm baths, and had also given upwards of an ounce of Hippo wine, without, however, producing emesis. Dr. O'Farrell having been also summoned to attend the case, and having come provided with a mixture, compound of Hippo wine, tartar emetic, and syrup of squills, we decided upon giving her a tea-spoonful of it every quarter of an hour. After the third dose, pretty free vomiting occurred, but the vomits consisted merely of the contents of the stomach, with a very small quantity of mucus. I also suggested the administration of a vapour bath, and having obtained Dr. O'Farrell's consent, I extemporised one by pouring some boiling water into a child's commode, placing a piece of thick muslin over the seat, and having the child supported by the nurse's hands, over this, and enveloping all with a blanket and counterpane. In this way a very good vapour bath can be given with comparatively little trouble. After the bath she seemed somewhat relieved, but the dyspnœa still continued very severe. On the following day she having passed a bad night, and the symptoms being still extremely urgent, I suggested that Dr. Mapother should be sent for, as I was very anxious to have his opinion as to the advisability of performing the operation of tracheotomy. The child's parents having gladly consented to that consultation. Dr. Mapother, after having carefully examined the child, decided, in consequence of the long duration of the disease, and the presence of symptoms of bronchial mischief, not to operate. He, however, recommended the application of vesicating collodion to the upper part of the chest, the exposed cutis to be dressed with mercurial ointment, also the inunction of the ointment into the axillæ; the application of a strong solution of nitrate of silver to the throat, and the administration of one grain of calomel every third hour. This plan of treatment having been rigidly carried out, the child appeared towards evening to be somewhat relieved, but she again passed a very bad night, and on the following morning was decidedly worse. I now, almost as a *dernier ressort*, suggested the treatment by the direct local application of atomized medicated liquids so ably advocated by Hermann Beigel, M.D., in the first volume of the *Practitioner*, page 94, Dr. Mapother having at once consented. I, bearing in mind the experiments of MM. Adrien and Bricheteau on false diphtheric membranes,¹ selected lactic acid as the agent which I considered most suitable to be employed in the case, and in preference to the other substances recommended by Dr. Beigel, I added two-

¹ *Vide* Journal de Chimie et de Pharmacie.

thirds of water to one-third of acid, and applied this every third hour, each application lasting for not more than a couple of minutes, so as not to further impede the already laboured respiration. This I consider preferable to making only two or three lengthened applications during the twenty-four hours, as practised by Dr. Barthez. From the time of the first application until her ultimate recovery, which did not, however, occur until three days afterwards, she continued to improve. But I must not omit to state that the treatment before observed was strictly persevered with, and that on the following day, after the first application of the spray, the constitutional effects of the mercury became manifest, and to the action of this remedy Dr. Mapother in a great degree attributed her recovery. The features in this case which I conceive possess the greatest amount of interest for the practical physician are—1. The extreme severity of the case. 2. Its long duration. 3. Its resistance of all the ordinary modes of treatment. 4. The effects produced by the inhalation of the lactic acid spray, decided relief being obtained after each application. 5. Its ultimate recovery. Without wishing in the present instance to theorize as to the *modus operandi* of medicated liquids applied in the form of spray, as in the present case, I may state that the experiments of Professor Zenker, of Erlangen, clearly demonstrate that it is quite possible, not only for liquids in the form of spray, but for solids in the form of dust to enter through the larynx. Virchow, who at first denied the possibility of the occurrence of such an event, admitted his mistake upon reading the experiments above referred to; still, however, it is extremely difficult to imagine how any substance can enter in sufficient quantity to produce a solvent action upon the false membranes. Such would, however, appear to be the case, as expectoration of not merely shreds of false membrane, but of the complete mould of the larynx and trachea, has been known to have occurred immediately after the inhalation of the spray; which, however, did not occur in the present case, scarcely a shred of lymph being visible in the expectoration. It is possible, however, and I had strong reasons to believe that such was really the case, that a quantity of lymph was ejected into the mouth, and immediately swallowed without being expectorated at all. In conclusion, I would recommend any one who may be induced to try this simple plan of treatment, to add a little ether to the spray mixture, particularly if there is much laryngeal stridor, as it not only tends to allay spasm, but also facilitates the entrance of the liquid through the glottis, by making it specifically lighter.

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¹ Any of the foreign works may be procured on application to Messrs. Dulau, of Soho Square, W.C.; or Williams & Norgate, of Henrietta Street, Covent Garden, W.C.

THE PRACTITIONER.

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Original Communications.

ON THE MODE OF EMPLOYMENT OF SULPHATE OF QUININE IN SIMPLE (NON-PERNICIOUS) INTER- MITTENT FEVER.

BY DR. AUGUSTE NONAT,

*Formerly Physician to the Hôpital de la Charité, Vice-Professor at the Paris
School of Medicine, &c. &c.*

NOTWITHSTANDING the remarkable efficacy of sulphate of quinine in the treatment of intermittent fever, we often hear of cases of non-pernicious intermittent fever which have failed to be benefited by the remedy. Obviously, an indiscriminate use is often made of the drug: large doses being exhibited where smaller ones would have sufficed, or small doses having been vainly employed, and the use of the drug thrown up, where large doses were necessary and would have afforded satisfactory results. Much depends for success upon the time, order, and duration of the administration of the remedy. Lastly, it is evident that in a great number of cases quinine has not produced benefit, because certain conditions of the disease, most important to be taken into account and most influential upon the results of treatment, have been overlooked or underrated. Very many years ago my attention was directed to the subject, and I was fortunate enough, after much careful search and observation, to lay down some rules of

practice by the help of which I have been since able to exhibit quinine with, I may say, certainty of success, and often to obtain a cure in cases which had been given up in despair by others.

The mode of employment of sulphate of quinine in simple intermittent fever must depend upon four main conditions.

1. We must take into account the *intensity* of cause, and therefore make inquiry concerning the locality where the disease was contracted; for instance, Algeria, Paris, Rome, Sologne; the cause being more or less powerful according to the infecting localities.

2. The oldness of the complaint must be taken into serious consideration. The older the fever, the stronger must be the dose of quinine.

3. The type of the fever. Thus quartan fever requires a much larger dose of quinine than the quotidian or tertian type.

4. The degree of tumefaction of the spleen. And, indeed, when the spleen is not enlarged, *cæteris paribus*, the dose of sulphate of quinine should be smaller; and on the other hand, the larger the tumefaction of the spleen, the more must we increase the dose of the remedy.

In quartan fever the patient has two good days out of three; he may do his work, attend to his ordinary occupations, and not call in the doctor. Meanwhile the complaint becomes more intense—*vires acquirit cundo*. This, therefore, turns out an old case, and may be coupled with my second condition; namely, the *oldness* of the disease. Indeed, it is much on this account that the quartan type is less amenable to treatment than the tertian or quotidian.

We may therefore reduce to three the rules to which I have referred, and put it down that, in order to determine the due amount of remedy which it is necessary to exhibit, we must take into account *the intensity of the cause, the oldness of the disease, and the state of tumefaction of the spleen*.

Next comes the question of the amount of quinine which it is suitable to administer at the outset of the treatment. When called to the bedside of a patient laying under fever, by what dose must we begin? In a general way the dose will vary from 5 to 23 grains. The *minimum* dose will be administered

in *recent* cases of simple intermittent fever unattended by tumefaction of the spleen; the *maximum* in *old* cases of intermittent, accompanied by considerable enlargement of spleen, whilst the intermediary doses will suit intermediary cases. But it should be borne in mind that *whenever* the spleen is enlarged, at least 10 to 12½ grains should be administered every day at the outset.

This remark leads to another important question; namely, the order of administration of doses, with regard to strength, and the duration of the use of quinine.

Experience leads me to set down that the maximum dose must be immediately given to commence with, that it must be continued for four or five days, and that we must then go on gradually decreasing the dose, till complete resolution of the enlargement of spleen has taken place. Thus, for example, if we begin with 23 grains, I should say 23 grains for five or six days, then 15 grains for five or six days more, then 7½ grains for the same space of time, and so on. The total duration of exhibition of the drug will generally take about three weeks; still after this time however we must not suspend its use, but continue giving some small doses from time to time, in order to keep up the action of the medicament.

Another important point is the necessity of keeping up the patient's strength during treatment, and of giving him a proper amount of food. I have observed that sulphate of quinine is far better tolerated by patients who are properly fed. Thus, on the very first day, as soon as the access is stopped by quinine, I am accustomed to allow my patient his ordinary number of meals, or only to lessen them according to circumstances. The stomach puts up better with the remedy, and the gastralgie effects of quinine are thus much seldomer noticed than when diet is enforced.

The mode of the treatment which I have now described succeeds equally well with the quartan type as with the others, which shows that the quartan type proves refractory only because the treatment is not appropriate and consists of too feeble doses at the outset.

Another point of practice which well deserves to be mentioned is the necessity of inquiring into the state of the stomach

before administering quinine. If the organ is diseased, the full effects of the remedy will not be obtained, and it may even prove injurious. We must in these cases have recourse to enemata. The sulphate of quinine exhibited in this form is quite successful. If both rectum and stomach are diseased, we must then employ the cutaneous method. A mixture composed of hog's lard 7 drachms, sulphate of quinine 1 drachm, and alcohol $\frac{1}{2}$ fluid drachm, well rubbed into the skin, has often afforded me very satisfactory results.

Opium may also be associated with quinine with great advantage when the alimentary canal is diseased.

Does this treatment succeed in every case? Not in *every* case. If not, why? According to my experience, when sulphate of quinine does not succeed it is because there exists some complication,—and, very generally, this complication may be found in the *inflammatory* condition of the spleen. There is not only an enlargement of the spleen, but a state of inflammation, especially manifested by tenderness and pain in the situation of the organ. And so when intermittent fever is attended by tumefaction of the spleen, and pain in the situation of the spleen, the most appropriate administration of quinine may fail in one's hands.

In such cases of intermittent it has often happened to me to exhibit sulphate of quinine till the patient's system was positively saturated therewith; yet the pain in the spleen persisted, and the fever would return. The patient again had fits of fever: the fever had been temporarily *broken*, but it returned in a more or less short period of time. I was then led to employ local means which might combat the inflammatory condition of the spleen, and in those same patients, after a fresh course of the sulphate, coupled with the application of the cupping scarificator to the situation of the spleen, the fever no more returned and cure was complete. I remember one case especially, in which the patient had unavailingly taken as much as 50 grammes ($12\frac{1}{2}$ drachms) of quinine under the care of Chomel and Piorry, whilst with the help of the cupping scarificator I got him quite well after a course of $2\frac{1}{2}$ drachms of the remedy.

The fact is simply this: that to cure the patient we must satisfy two conditions, namely, neutralize the diathesis, the paludal intoxication, and at the same time dispel the tume-

faction of the spleen. We must treat simultaneously the local lesion and the general lesion; for if one of the two remain undestroyed, it may reproduce the other. The local lesion, the inflammation of the spleen, if left subsisting, may light up the diathesis;¹ and on the other hand, if we apply proper treatment to the local or visceral inflammation, yet neglect to master the general poisoning, we have not done with the disease. I have often had occasion to verify the truth of this last statement. When, notwithstanding the application of the scarificator, my doses of quinine were not large enough, I was condemned to notice the return of the fever; but as soon as I had sufficiently increased the amount of the drug there was no recurrence of the fits.

When sulphate of quinine is therefore exhibited in too small doses, the fever may be *broken* for once, but the tumefaction subsists and the patient is not cured; likewise, if the treatment has not been carried on long enough, that is, till the extinction of the splenic lesion, the fever will return and the whole course of treatment has to be resumed.

Practically, and to sum up: to cure intermittent fever we must exhibit sulphate of quinine in due amount and in proper order, to counteract the effects of the paludal poison, when there exists no complication, no inflammation, on the part of the spleen—but when this complication does exist we must master it by local applications.

A word in respect to arsenic. It may be broadly stated that arsenic is not equal to the sulphate in ordinary cases of intermittent. I have found it act on the cachectic state of the patient, but not on the local lesion, and therefore it leaves the patient exposed to a recurrence of the fever.

¹ Piorry says that everything is in the spleen. I simply believe that the spleen, which is an effect, may become a cause in its turn.

ON AURICULAR HERPES ZOSTER, AND ITS TREATMENT.

BY DR. ANSTIE.

DURING the last week or two, I have personally had an experience of a very interesting kind. I have been the subject of herpes zoster in an unusual form, and the apparent results of treatment involved a therapeutic fallacy which it is instructive to investigate.

Every one is aware that the ordinary form of herpes zoster appears on the thorax or the flank, that it follows the course of one or more of the intercostal or of the anterior abdominal nerves of one side, and that till lately it was denied that the disease ever showed itself on the face or the extremities. In recent years, however, it has been demonstrated that an exactly similar eruption, preceded and often followed by morbid nervous sensations, often amounting to acute neuralgic pains, may occur on the face, the neck, or on the limbs, always corresponding to a well-defined nerve-territory. Facial herpes zoster has been seen in a very considerable number of cases; Mr. Hutchinson,¹ for example, tabulated fourteen cases, in all of which the ophthalmic division of the fifth nerve was affected. Mr. Hutchinson mentions only one case in which a branch of the *third* division of the trigeminus was affected; and from all the other reports that I have met with, it appears that true *unilateral* neuralgic herpes, in this situation, is exceedingly rare; although *bilateral*, painless herpes of this region is one of the commonest affections, as a complication or sequel of febrile catarrh, pneumonia, &c.

¹ London Hospital Reports, 1866.

In the very interesting paper above referred to, Mr. Hutchinson points out the importance of the question, still undecided, whether herpes zoster should be looked upon as a neurosis or as an exanthematous fever. He admits that its connection with definite nerve-districts is indisputable, but he points attention to the fact that it is also a disease which usually runs a tolerably definite acute course, and, like the contagious exanthemata, rarely occurs twice in the same individual. Now I think there can be no doubt that the commoner form of shingles—affecting the lateral thoracic region—does not frequently recur in the same situation, though curiously enough it has happened to me to see a case lately in which the same person has had thoracic unilateral herpes *three times*. But I am not at all convinced that the disease does not, even frequently, recur a second or third time, in different situations: and I have certainly known several examples in which this took place. My own case, now to be related, is an instance in point. I had had regular thoracic shingles, as a child; and I have just suffered from an attack of zoster connected indubitably with the third division of the trigeminus, and complicated with severe neuralgia of this nerve, and also of the descending branches of the cervical plexus.

It is necessary to premise that for about twenty-three years past I have been liable to attacks of neuralgia in the right trigeminus; these were originally frequent and severe, but for some years past the tendency has been diminishing till it is now comparatively very slight. Hitherto, however, the attacks of actual neuralgia have never affected the third, or inferior maxillary, division of the nerve; they have confined themselves to the ophthalmic and the superior maxillary divisions, being usually much the most severe in the territory of the ophthalmic. Abundance of secondary phenomena, however, on which there is no time to dwell here, but which will be found amply described in my work on Neuralgia,¹ just published, have occurred, and suffice to demonstrate that the cause of my disposition to neuralgia must be some peculiarity in the nucleus of the right trigeminus, almost certainly congenital, and rendering the whole nerve more

¹ "Neuralgia and the Diseases that resemble it." Chap. III.: "Complications of Neuralgia." London: Macmillan, 1871.

or less liable to attacks of pain and other forms of adynamic irritation.

Such being the ordinary vital status of the nerve, the following is the history of the recent attack:—On August 24th I began to suffer most acute pain in front of the tragus of the right ear, which came and went several times in the day, and which darted from the place where it commenced into the meatus auditorius and the maxillary joint, and ran up the side of the head. I concluded that I had caught cold from unusual exposure to draughts in a house that was undergoing repairs, and at first was not certain that there would not be abscess of the meatus; but in the course of forty-eight hours it became quite obvious that that was not the nature of the malady, for the pains recurred with great regularity four times in each twenty-four hours, and in the intervals the parts were quite free from pain; besides, they could be handled, at any time, without showing tenderness. On the 29th the pains became so violent as to necessitate the use of morphia whenever they recurred, and had they been merely superficial I should have endeavoured to stop them (as I have repeatedly stopped my attacks of frontal neuralgia) with the constant current: but I shrank from the application of the constant current deeply within the meatus (which must have been done), from an uncertainty as to its physiological effects upon the auditory nerve. On this, the sixth day of the neuralgia, I begged Mr. Carter to examine the ear with the speculum; he found the meatus and the membrana tympani perfectly healthy, without redness or tumefaction. The pain now was at its acme of severity, and the paroxysms extended not only into the branches of the auriculo-temporal, but into the labial branches of the inferior dental nerve, and passed over into the superficial cervical nerves, running quite down to the right shoulder. The intractability of the affection puzzled me greatly. On the 31st August Mr. Carter, examining the meatus again, reported that there was now some slight internal tumefaction and redness; but it seemed difficult to say if this were not partly caused by local applications which I had used, in desperation, during the attacks. I now requested Mr. Hinton to examine the ear; he did so, and verified the moderate tumefaction, and thought he detected a very small “pimple,” but believed that it was merely

the effect of local applications, and that the case was one of pure neuralgia. Mr. Hinton advised quinine, the use of soothing unirritant applications, and the exclusion of air. Accordingly I treated the periodic attacks with the continuous application of hot poultices covering the entire ear and the painful point in front of the tragus (where there was, by this time, a veritable *point douloureux* of Valleix), and the use of large doses of quinine. In the course of forty-eight hours I had taken nearly sixty grains of quinine; and by the end of that time a striking amendment was produced, so striking, in fact, that it seemed impossible to avoid the inference that the quinine had caused it. (No discharge of pus whatever had taken place.) I discontinued the poultices, and on the 6th September ventured also to remove the cotton-wool with which I had plugged the ear, in the intervals of poulticing, to exclude cold; but soon found that the part was too sensitive to admit of this being done with impunity. My attention was now attracted to a few small vesicles in the central folds of the pinna, and a little group of two or three at the external edge of the cartilage; the latter, being rubbed, ulcerated and became very painful. A draught of cold air on the spot would momentarily set up the old neuralgic pain. At the same time a small group of characteristic herpetic vesicles formed below the right angle of the mouth, and invaded the mucous membrane; unluckily, in forgetfulness, I irritated these by smoking a pipe on that side of my mouth, and they coalesced to form one rather nasty ulcerated pustule. It was only on September 11th that I discovered that there had also been a few vesicles (then dried up) on the neck, over the right sterno-mastoid; though I had noticed some soreness in washing and wiping the part. By the 13th the vesicles had everywhere completely disappeared, and all tendency to neuralgic pain had also apparently left me.

The first remark on this narrative that occurs to me (beyond the reflection that had the case been anyone else's than one's own, one would perhaps have discovered its nature much sooner), is that the apparent curative influence of the quinine was probably altogether delusive. The time during which it was apparently producing such marked effects was evidently that during which the herpetic eruption was beginning to come out, and that is, I

need not say, a period at which the violent pain of neuralgic herpes often ceases: in fact, in the majority of cases that I have seen, the pain was then at least temporarily suspended. To say truth, the decidedly beneficial action quinine had seemed to exert had greatly surprised me, for a long experience, especially in the treatment of my own case, had led me to an utter distrust in quinine for non-malarial neuralgias; and I had even begun to speculate whether, in a recent short trip to Westmoreland, I had not caught a slight taint of malaria, from which the neuralgia had resulted. I think this idea may now be entirely set aside, and the explanation adopted that the relief of the pain was altogether spontaneous.

The true treatment for such a case seems to me not at all doubtful, since it is the same which I invariably adopt with success in ordinary shingles attended with neuralgia. Morphia should be given hypodermically, $\frac{1}{6}$ grain twice a day; local injection (near the trunk of the auriculo-temporal nerve) is for once to be preferred; and at the same time the painful parts should be hermetically sealed from the air. For the external parts collodion flexile constantly re-applied is the best thing; within the meatus, a good thick coating of simple ointment (put on melted with a brush), and an external plug of cotton-wool, should be used. The grand points are, to exclude the irritation of external cold, and to prevent the neuralgic pain from rising to any great severity: with this treatment I believe that zoster may always be kept within bounds, and the vesicular eruption prevented from developing to any large extent. And, what is very important, the vesicles are prevented from becoming open ulcers, a condition which is almost certain to involve a troublesome revival of the neuralgic pain.

The other remark to which the above related history gives rise is pathological, and has only an indirect bearing on treatment, but I may be excused for introducing it, because the rarity of the case makes it important not to lose any lessons that it may suggest. I say the *rarity* of the case—but my very point is, that such cases are perhaps not so uncommon, there being a possibility, and even likelihood, that the majority of them simply escape recognition. The idea that has occurred to me is this: that a large proportion of cases of earache, which are generally

set down as examples of suppurative inflammation of the meatus auditorius, are in reality *nothing but neuralgic herpes, depending on an affection of the auriculo-temporal nerve*. What is the history of common earache? So far as I have seen, there are comparatively few cases in which the pain begins very gradually and then continuously increases up to a moment at which pus is discharged and immediate relief obtained; yet that should be the invariable order of events in the case of suppurative inflammation of the lining of a narrow bony canal like the meatus auditorius. Inflammations occurring in organs where there is room for expansion, may, and usually do, cease to be actively painful during the middle stages of the process, and only become painful again (with a throbbing agony) when pus is actually forming. But in a confined space like that within the meatus auditorius, the presence of pain is continuous, since the products of inflammation very early begin to produce severe tension. But in ordinary earache, for instance that to which children are liable, the course of events is, I believe, quite different from this. The pain often comes on in the first instance violently; the patient cries out with the severity of the suffering; but then there are remissions, amounting often to complete intermission. Moreover, so far as I have seen, it is but rarely that a well-defined discharge of pus is observed, even when relief to the pain has been somewhat suddenly obtained, as is not unfrequently the case. Indeed I have often been exceedingly puzzled by my entire failure to detect more than a very moderate amount of tumefaction within the meatus, and by the fact that the closest observation could not find a single globule of pus on the poultice or other dressing applied to the ear at the time when the pain became suddenly mitigated. On the contrary, there very frequently is found, what I observed in my own case now related, a shedding of small scales, either dry or moistened with a very little bloody sanies, from the lining of the meatus, a few days after the cessation of the pain: in fact, what looks exactly like the dead epidermis of vesicles that have faded. The whole course of events seems to correspond much more nearly with that of auricular neuralgic herpes, than with that of common abscess of the lining membrane of the meatus.

Should this suggestion prove correct, and should it be esta-

blished that a neuralgic auricular herpes is the cause of a considerable proportion of cases of earache that are commonly supposed to be suppurative on account of the sudden way in which relief is at last obtained, some very interesting further considerations will be opened up. Earache is comparatively common among children, whereas the ordinary forms of neuralgia are exceedingly rare, before puberty. But on the other hand, shingles attacks children as frequently as adults; a very common age for it is between 8 and 10. Ordinary unilateral herpes is, however, not attended by actual neuralgic pain, in children; although there are highly disagreeable sensations (especially previous to the outbreak of the eruption) resembling, for the most part, very hot water running about underneath the skin. Why should *auricular* shingles, alone, be attended with true neuralgia in children? as would be the case on the hypothesis which I have put forward. This is, no doubt, a difficulty, and for the moment I see no answer to it; but the mere circumstance that there is a difficulty in understanding why so uncommon a phenomenon as true neuralgia should attend this one form of herpes in children, does not alter the fact as to which I am confident, that in a vast number of cases of earache, in children as well as in adults, the pain is intermittent in character, and there is never any evidence of that discharge of pus which is presumed to account for the sudden departure of the pain. Under these circumstances, what seems like an anomaly ought only to serve us as a starting point for fresh inquiries which may perhaps lead us to interesting results; and I beg to throw out one suggestion that may be valuable. What is the meaning of the greatly higher irritability of the inferior maxillary (of which the auriculo-temporal is a branch) and of the superior maxillary, than of the ophthalmic division of the fifth nerve in childhood? for that this higher degree of irritability exists is an unmistakeable fact. How exceedingly rare is neuralgic headache before puberty; and how very common, *in children of a nervous temperament*, is toothache, from a very slight amount of caries, assuming all the intensity of a severe neuralgia, and darting into the ear, the throat, and the cervical nerves! I think it may be unhesitatingly said that the superior maxillary and the inferior maxillary nerves are the first of all sensory nerves in the body to exhibit

any tendency to pain of a grade approaching the severity of true neuralgia: and I can only suggest that the reason of this is, possibly, the depressing and exhausting influence exerted upon them by the growth of the teeth. But in truth we are as yet only just beginning to see the great importance of the questions that are connected with the comparative dates, in the physiological life of individual portions of the nervous system, at which those portions respectively exhibit certain phenomena, such as the tendency to pain, or convulsive action, &c.

Meantime, if my suggestion—that ordinary earache may be, in a considerable number of cases, merely auricular herpes zoster—be correct, it ought to produce certain practical consequences by which it can be partly tested. It must surely be unnecessary, or even hurtful, to apply leeches: a business which is always tedious and uncomfortable, and which (when the application is to the mastoid) sometimes leads to an amount of loss of blood which a delicate child can very ill bear. The only remedy of any value, beyond the hypodermic injection of morphia, and the sedulous exclusion of air from the skin of the whole affected nerve-territory, would be distal or reflex stimulation, by the application of mustard or cantharides over the branches of the great occipital nerve, in the “occipital triangle” of anatomists. There is reason to think that this might sometimes mitigate both the acute pain and the tendency to extensive vesiculation. But it would be necessary to avoid making a very severe impression, for in the latter case there would be some danger of setting up erysipelatous inflammation of a large tract of the neck, face, and scalp; a consequence which I once saw follow a too violent and extensive blistering of the nape for the relief of supra-orbital neuralgia.

THE MELKSHAM ACCIDENTAL POISONING.

EDITORIAL NOTE.

THE lamentable occurrence that took place lately at Melksham, where a child was destroyed by the unexpected absorption of bichloride of mercury, which had been applied to the skin for the destruction of some parasitic growths, ought not to be allowed to pass without serious reflection on the whole subject of the application of poisonous agents to the cuticle. In the first place, however, we must express the feeling, which we are sure is entertained by the whole profession as to the manner in which this accident has been visited upon Dr. Meeres, the medical man who was unfortunate enough to have prescribed and applied the parasiticide remedy which caused death. The jury was composed of tolerably well-educated persons, and the coroner was actually a medical man; consequently there ought to have been no possibility of misapprehension as to the true bearing of the facts; yet we find that a severe censure was passed on Dr. Meeres, and that the coroner made no protest whatever against it. As for the jury, we can only suppose that they had worked themselves into an agony of sympathy such as the British Philistine, more especially if he be a provincial, so dearly loves to expend on the sorrows of the gentry; and a mild contempt is the only feeling with which such conduct inspires us. It is less easy to speak with moderation of the conduct of the medical coroner in allowing the censure without protest: for either he was so grossly ignorant as not to be aware of the notoriously common use of the remedy which in this exceptional case produced bad results, or else—well, really we must decline to mention the only alternative explanation of the coroner's behaviour. Dr. Meeres was wholly blameless; and if abstract right were a little more powerful than it actually is in this

world, he should be awarded heavy legal damages against the officials whose obsequious insolence has inflicted this cruel wound on his professional reputation. As it is, we can only hope that the indignant sympathy of his more rightly-thinking neighbours and professional brethren will enable him to live the scandal down.

Having said this, however, it is our duty to turn to the other aspect of the case, and confess that the unhappy incident in question suggests serious considerations to our profession. Here is a remedy which almost every medical man has been using in parasitic skin-diseases, with the most absolute faith in its incapability of being absorbed; yet in the present instance it *was* absorbed with fatal effects. There does not seem to be any ground for doubting Dr. Meeres's statement that he carefully avoided applying the solution to any cracks in the skin: and it is only fair to suppose that we have here an instance of the bichloride passing through skin which, to the naked eye, appeared sound, in sufficient quantity to cause fatal mercurial poisoning. We must request our readers to keep their attention steadily fixed on this point, which does not appear, so far, to have attracted enough notice. A good deal has been said, and probably justly said, about the child being unusually susceptible to the constitutional influence of mercury. Such cases are well known to have occurred, in which it was absolutely impossible for the practitioner to guess beforehand that half a grain of calomel or a grain of blue pill would produce violent salivation, as it actually did. But what strikes us as most important, in the case of Dr. Meeres's poor little patient, is not the unusual action of the mercury after it got into the system, but the fact of its passing through the skin at all. Mr. Gore, of Bath, whose evidence at the inquest was a perfect model of bad taste and of disloyalty to a colleague in undeserved distress, threw implied blame on Dr. Meeres for using so strong a solution of the bichloride. What shadow of proof, or even of likelihood, is there, that the strength of the solution had anything to do with the bad effects? None whatever. On the contrary, a very highly concentrated solution would be (both *à priori* and from actual experience) more likely than one of medium strength to form an insoluble albuminate by combination with albumen of the

tissues and blood of the skin, and thus to make infection of the general mass of blood with mercury impossible. At any rate, that was the received and orthodox theory on the subject, as Mr. Gore must or ought to have known. And it must be remembered, that supposing the mercury capable of passing into the circulation at all, it would need but a very small portion to produce the poisonous effects upon the organism, so that a weak solution would still have contained abundance of mercury to cause the unfortunate result. Indeed, there can be no doubt that the tendency among dermatologists has of late years been intentionally to increase the concentration of solutions of bichloride ordered for external application, under the idea that this would put danger of absorption out of the question, and up to the present moment it would seem as if the object had been fully obtained, since thousands of cases of ringworm of the head, pediculi pubis, and other parasitic affections, have been treated with the concentrated solution, without any absorption taking place. Whereas, at the period when weaker solutions of the bichloride used to be employed, various cases of poisoning from absorption did take place. The reader will find several such instances in "Christison on Poisons" (1845), but he must understand that what Christison speaks of as "even a concentrated solution" was what we should now call a "weak" one.

Let us consider what really occurs in the action of the concentrated solution of bichloride of mercury, 10 grains to the drachm of alcohol. The epidermis is at once *tanned*; that is to say, it is converted into dead tissue, at the same time that any parasitic growths upon it are killed. The layers immediately beneath the epidermis betray the action of the bichloride by inflammation and the exudation of serum: which must mean that the poison penetrates at any rate to the surface of the cutis, and there exerts an action partly chemical (forming an insoluble compound with albumen) and partly vital, as evidenced by inflammation and pain. Now it can hardly fail to strike those who reflect on this process, that the security of the organism from absorption of the poison must entirely depend on the rapidity and completeness with which the capillary circulation of the true skin becomes sealed up by the conjoint action of simple coagulation and of the inflammatory exudation. If

any absorptive mischief took place, it would be during the first hour or two after the application: and that this actually occurred in the Melksham case seems evident from the description given of the swelling of the head and face and salivation (specific results of mercurialism), only a very few hours later. It seems to us that this reveals a condition of things in which safety is more dependent on chance than one can approve, even though the amount of risk has been proved by experience to be so exceedingly small; for, after all, it is certain that if absorption were to get even a very small start of the coagulative and inflammatory changes in the cutis, enough mercury might enter the circulation to produce serious constitutional effects. Practically, this consideration seems to reduce the means of defence to the coagulative changes which the sublimate might immediately set up in the blood and in the tissue-juices of the cutis.

It appears to us, therefore, that, in presence of the facts, external applications of bichloride of mercury, though they have been so long and so highly sanctioned, had better be abandoned for the future. It might possibly be worth while to run the small amount of risk which they involve for the sake of some very important object not otherwise attainable: but there is no such object. As a parasiticide bichloride of mercury is not one whit superior to several other agents which are perfectly incapable of producing constitutional effects; and if blistering be considered necessary in bad cases of tinea, it can be produced equally effectively by means of cantharides.

It is a curious fact, which we must notice in conclusion, that an accident like that which has just occurred is an apparent exception to a general physical law. The late Augustus Waller proved, in an exceedingly interesting research published in the *Practitioner* for December 1869, that alcoholic solutions of alkaloïds are almost or quite incapable of absorption through the skin, although chloroformic solutions are readily absorbed; and one would suppose that bichloride of mercury would follow the same law. One does not yet see the cause of the exceptional result in this unhappy case; but certainly the effect of this paradox upon our own mind is to strengthen the conviction that the use of bichloride of mercury externally were best abandoned altogether.

A FEW PRACTICAL OBSERVATIONS ON THE TREATMENT OF WOUNDS.

BY JOHN SWIFT WALKER, M.D., OF HANLEY.

THE treatment of ulcers or wounds after operations, or any wound secreting pus, undergoes a certain routine, according to the prevailing fashion—formerly it was poulticed, then water-dressing, then the sulphuric acid, and now the antiseptic treatment is the one prevailing topic of the day—to heal a wound or assist nature in closing the solution of continuity without any secretion of pus—the so-called “Lister’s treatment;” to destroy all germs, thereby retarding nature’s reparative powers, and very often obliged, as a last resource, to resort to some well-tried simple mode of treatment to heal or get nature to cover up the surface with a cicatrix,—that it now behoves every practitioner of the healing art to sift the wheat from the chaff.

If I can throw out some practical hints, without assuming to go to the extent of Dr. Wilks for theoretical therapeutics, or as far as Dr. Anstie for scientific therapeutics, my object will be attained.

This paper must not be supposed to be exhaustive of the subject, as it is such an extensive one; my chief motive is to modify the antiseptic treatment so as to avoid the factor often smelt in a surgical ward, through poultices and offensive secretions, so well known to every hospital surgeon or any one having a large surgical practice.

First, take a simple incised wound of the scalp; after shaving the surrounding margin and inserting a suture (if large, a *sine quâ non*). In this class, freely apply Richardson’s styptic colloid, over this a pad of carded wool. In a few days the appli-

cation of the solution will be again required, and a fresh piece of wool.

For simple incised wounds Richardson's solution is a very valuable addition to our *Materia Medica*, but only to be used as collodion or plaster to hold the two surfaces of a wound in position. It promotes union by the first intention, and if it does not so unite, the wound is not so gaping nor has it so large a cicatrix.

The carded wool or marine lint.—I have tried several kinds, but none seem to fulfil the object for which it is used so well as that obtained from Messrs. Wood, of Manchester, made by Mr. Westhropp, of the Falcon Works, London. But more of its special use hereafter.

Take now an amputation of arm or leg. After the operation, my plan of treatment is as follows:—Sponge out the wound thoroughly with chloride of zinc ʒss to ʒj of water, then let all applications be quite dry for the first two or three days; as soon as there is the least secretion of pus, take a Higginson's syringe, and wash out the flaps with a strong solution of Condyl's Fluid, say ʒj to ʒx of water; apply strapping, and cover the wound with a small piece of lint wetted with a lotion of ʒij carbolic acid, ʒij liq. potassæ to six ounces of water; cover with a piece of gutta-percha tissue, and continue until healed, surrounding the edges or flaps with a little pad of carded lint.

Take another every-day case—an ulcer of the leg. If it is a large flabby ulcer, secreting a large quantity of pus, nothing is so good for compressing the granulations and checking the secretion of pus as the marine wool; but after it has fulfilled its object, a change of treatment, by the application of either a little dry precipitated chalk, zinc ointment, or zinc lotion, will heal it in a few days with rest and bandaging.

The marine lint is a very excellent application for a sinus after the removal of necrosed bone, and facilitates their closing with very little secretion of pus. Its tarry smell seems, in my opinion, to disinfect all ulcerating surfaces, but the application must not be continued too long, as the wool seems to contract the granulations, if such a term may be used.

I do not altogether agree with Mr. Lister as to the germ theory, but he has done good by teaching us to wash all wounds

under our care with some disinfectant at each dressing; and every practitioner who will adopt this plan of treatment will be pleased at their satisfactory progress: and yet, not a mere washing—it must be a stream of fluid. Any stump, after amputation either of the leg, arm, or finger, granulates very fast under this mode of treatment.

In my opinion, all Mr. Lister's solutions of carbolic acid are too strong and abrade the cuticle surrounding the wound; it may be through my clumsy mode of application, or not following the minute directions laid down. Thus far I can admire his treatment, that it teaches us all that we disturb the approximating surfaces of wounds too often very unnecessarily, and thereby retard nature's efforts.

Since writing the above, my attention has been directed to a paper in the *Lancet* of the 13th May, on the use of a similar article, "Tenax." This I have not had as yet; but doubtless it produces the same therapeutical effects as the carded wool. Its chief advantages seem to arise from being so porous as to soak up all discharges, and the tar or ingredients of the tar, probably the creosote, so neutralizes and changes the character of the discharge that it becomes quite innocuous: for we see the same effect in an injection of creosote in corroding ulcer of the uterus or in cancer. But a creosote lotion has not the same effect upon open wounds.

My chief motive in writing this paper is to direct the attention of my professional brethren to the use of some preparation as the carded wool, as its therapeutical effects are only known to a few, and these highly appreciate its use.

NITRITE OF AMYL; ITS PHYSIOLOGICAL ACTION AND MEDICINAL USES : WITH SUGGESTIONS FOR ITS EMPLOYMENT IN CHOLERA.

BY TALFOURD JONES, M.B. LOND., UNIVERSITY MEDICAL SCHOLAR,
Physician to the Brecknock County and Borough General Infirmary.

My attention was first drawn to this new remedy by reading in the *Medical Times and Gazette* for Sept. 3, 1870, an editorial paper on "The Progress of Therapeutical Science." It gave the results of Dr. Richardson's experiments with nitrite of amyl, and described a case of Dr. Brunton's, in which the remedy had been most successfully employed in angina pectoris; also one of Dr. Anstie's, in which it had given most marked relief to an asthmatic gentleman who suffered from angina. Two or three other instances of its therapeutical value were mentioned. Happening at the time to have under my care a most distressing case of angina in an elderly lady, I sent for a couple of ounces of the nitrite; but, unfortunately, the day before the supply arrived my patient died, and I had no opportunity of trying it upon her, and of affording her that relief from pain which my subsequent use of the remedy tells me she would most certainly have had. Shortly after, October 23, I had an opportunity of trying it in a severe case of spasmodic asthma; and the immediate and almost magical relief it afforded convinced me that in nitrite of amyl we have a most powerful and valuable medicinal agent.

During the last twelve months I have met with no recorded cases illustrative of its employment in disease. While in London a few weeks ago, I made inquiries at two metropolitan hospitals, and found, to my surprise, that in neither had nitrite of amyl been tried. I must, therefore, come to the conclusion that this remedy is most insufficiently known; and it is for the

purpose of helping to diffuse a knowledge of its very great therapeutical value that this paper is written.

Nitrite of amyl, $C_{10}H_{11}O, NO_3$, is an amber-coloured fluid, smelling like the essence of ripe pears. The experiments of Dr. Richardson show that it causes paralysis of the chain of organic nerves which supplies the contractile power of the blood-vessels; that, applied to the olfactory filaments by inhalation, the impression is conveyed along the ganglionic nervous tract, and causes more or less paralysis of the vaso-motor nerves, and induces muscular and arterial relaxation.

Though it produces its characteristic effects directly upon the walls of small arteries, yet it is highly probable that it also acts upon most, if not upon all, unstriped muscular fibres.

I have now given it experimentally to some fifty friends and patients, and have found that its inhalation invariably causes increased frequency of cardiac pulsation, accompanied with flushing of the face, warmth of head, face, and neck, and perspiration—the warmth and perspiration often being general. The pulse is the first tell-tale of its effects: in from eight to twelve seconds its frequency rapidly increases. A pulse of twenty in the quarter-minute will often rise in ten or fifteen seconds to forty. The beating of the heart and of the carotids is in some persons very marked. The reddening of the face sets in later; it usually takes from thirty to forty seconds before there is much flushing. It sometimes causes a little breathlessness and coughing. Now and then it gives rise to giddiness; and, in some, to a feeling of intoxication—girls who have inhaled it have often complained that it has given them a headache.

It may be administered by inhalation, by the mouth, or by subcutaneous injection. The best and safest way is by inhalation. I usually pour five drops on a piece of lint the size of a crown-piece, or larger, and hold it close to the nostrils for ten or twenty seconds, or until I feel an acceleration of the pulse or see the face beginning to redden; or the nitrite may be dropped on to a pocket-handkerchief, and then held to the nose just like chloroform; or, lastly, it may be inhaled directly from the bottle. I have never seen any bad effect result from its use. There is just one important point that should be borne in mind,

and this has been insisted upon by Dr. Anstie—it is, that judgment and caution should be exercised in its employment in the aged or in persons the subjects of arterial degeneration. It must not be forgotten that, just as the cerebral congestion induced by stooping down may cause rupture of weakened or damaged cerebral arteries, so also may the sudden alteration in the cerebral circulation by amyl be followed by similar ill results. I will now successively describe every case in which I have employed it in disease.

I. SPASMODIC ASTHMA.—At twelve o'clock on the night of October 23, 1870, a woman begged I would instantly go and see her daughter, who, she said, "was in a dying state." On entering her bedroom, I saw the patient, a young married woman, half undressed, sitting on the corner of the bed and holding on to the bed-post. There was a dusky leaden hue about her face, neck, chest, and hands, and a cold damp sweat clung to her. Her body generally was cold, but her feet and legs were of an icy coldness. Her pulse could scarcely be felt. She was making violent efforts to breathe, and each inspiration was accompanied with marked recession of the supra-clavicular and the intercostal spaces. Loud sibilant râles with sonorous rhonchus could be heard over the greater part of the chest. She tried to speak, but could only make faint gasps. The thought instantly occurred to me that the nitrite of amyl which I had procured only a short while before might be of use. I ran back to my house, which was close by, and returned with the bottle. Five drops of amyl were applied, on a piece of lint, to her nostrils. In half a minute her face began to redden, and in less than a minute it was deeply flushed; her heart palpitated, her carotids throbbed, warmth of body quickly returned, and her breathing became easy. The effect was marvellous, and I felt nearly as much astonished as the patient and her mother. She now became able to converse, and told me that she had been subject to asthma for many years, that her father also was asthmatical, and that she had never before had such a severe attack as this. She accounted for it thus: In the early part of the day she was as well as usual; but that evening she remained out for some time in the wet, and returned home feeling damp, cold, and chilly.

In about ten minutes after the inhalation, the breathing became a little asthmatical, so we re-applied the amyl, and again she became perfectly easy, and went to bed. Next morning she told me that she had had a most comfortable night, the asthma had quite gone, and she was attending to her household duties.

About five months after this attack, March 26th, 1871, I was again summoned to her. This time it was nothing more than an ordinarily severe bout of asthma, and wanting the signs of severe collapse that accompanied the first. A repetition of the amyl treatment was followed by results as speedy and effectual as in the first instance.

Assuming that our theories of the Physiological Action of Nitrite of Amyl and the Pathological Cause of Asthma are right, then the explanation of the action of amyl in asthma is easy.

Whether the contraction of the bronchial tubes in asthma is due to powerful innervation of the vagi or sympathetic, or partly to both, it is clear that there is muscular spasm of the air-tubes, and air will not freely enter the smaller tubes when they are greatly narrowed in calibre.

The remedies most useful in asthma are those which relax muscular spasm. Nitrite of amyl is a relaxer of muscular spasm, and, as I have shown, is capable of relaxing spasm of the bronchial tubes.

II. SPASMODIC ASTHMA.—Mr. G——, æt. 44, had been subject to occasional attacks of asthma for some years. On the 6th of last March he had a rather bad attack of it, and late in the evening he sent for me. He had caught cold, and when I saw him there was some bronchitis as well.

Inhalation of the nitrite of amyl instantly relieved his asthmatic breathing. In six or seven minutes after it returned, though in a lessened degree. Again he inhaled the amyl, and again with relief; but for the next hour there was every now and then a tendency to the recurrence of the bronchial spasm, which, however, continued to be relieved at every inhalation. He went to bed, and had a good night. Next day the asthma was gone, and a little bronchial catarrh only remained.

III. CARDIAC DYSPNŒA.—Mrs. T. T—— suffered from dilated hypertrophy of both ventricles, the dilatation being in excess, accompanied by a very feeble circulation, and anasarca to an extreme degree extending upwards to the abdomen, slight pulmonary œdema, some lividity of face, but not much shortness of breath.

Hydragogue cathartics and infusion of digitalis, acupuncturation and vapour-baths, were used, with temporary relief. The digitalis, given in full and frequently repeated doses at intervals of a week, had invariably induced a copious discharge of urine, but at last its diuretic effects seemed to fail, and one day last November I thought I would see whether cupping the renal region would be of service. It should here be stated that during the preceding week she had been inhaling the nitrite of amyl, five drops at a time, four or five times a day, with some relief to her breathing. On each occasion she felt easier, more comfortable about the chest, and experienced a pleasant glow all over her body. The comforting effects of the amyl usually lasted about an hour. I proceeded one evening to cup the loins. Two glasses were applied, one over each kidney. The blood flowed slowly, and when there was about a wineglassful in each glass it ceased to run. At that moment it occurred to me that it would be interesting to watch just then the effects of nitrite of amyl upon her. I immediately applied about ten drops on some lint to her nostrils. Soon the radial pulse throbbed, then the face became flushed, and *at the same instant blood flowed freely into the cupping-glasses*. The experiment was most striking, and clearly showed the influence of amyl on the circulation.

IV. ANGINA PECTORIS. — Mr. P——, aged 21. When seventeen years old he had a severe and prolonged attack of acute rheumatism, which caused the cardiac mischief from which he now suffers. Towards the end of a long convalescence he began to be subject to præcordial pains, which have ever since continued to trouble him. For the fortnight immediately preceding my first interview with him, he had not had during any night an hour's sleep. His pains were terrible, cramp-like and suffocative, chiefly situated about the left mammary and infra-mammary regions, but most intense near the left nipple,

and radiating to the shoulder, the neck, and down the left arm to the elbow. He often felt that he must die. Latterly the pains had increased in frequency and severity. For months past he had not passed a night without a paroxysm, and rarely had he escaped during the day. An attack usually lasted from half an hour to an hour, but sometimes held on for two hours; it was generally made up of several paroxysms, with, perhaps, respites from pain of a minute or so in duration. He had consulted several doctors, and had tried all sorts of remedies, but never got any substantial relief.

I first saw him on the 26th of last January. He was then sitting in a chair, was easy, and free from pain—face very pale, pulse abrupt, rather tense, irregular in force, 90. Cardiac impulse heaving, extensive; apex beat three inches below nipple level, and an inch and a half outside nipple line. Systolic and diastolic basic murmurs. Systolic murmur left apex; systolic thrill at base. While I was examining his heart, he was seized with a fit. He seemed to suffer most agonizing pain about the præcordial region, which he pressed and squeezed with his left hand; he threw his head back, inspired deeply, stretched his neck, held his breath for about half a minute, and whilst doing so kept most of the muscles of his neck, shoulders, and chest strained to the uttermost. He afterwards stated that the posture described and the straining were in most part voluntarily assumed, since they gave him some slight comfort during the paroxysm. Cold and clammy perspiration on his face; distressing eructation set in, accompanied with loud gulping noises. He continued in this state for about four minutes. There was nothing to indicate that the paroxysm was about to abate. I then poured five drops of nitrite of amyl on a piece of lint, and held it to his nostrils. In about thirty seconds his face and neck became deeply flushed, and all his pains vanished. He looked at me with the utmost astonishment, scarcely knowing what to make of his sudden relief. In answer to my question, he said the pain was gone. That night he slept soundly. A bottle of the nitrite was left with him, with directions that he was to pour out five drops and inhale it whenever an attack came on.

Ever since the amyl has invariably given him relief, and no

ill effects or unpleasant symptoms due to its repeated use have been noticed.

Altogether he has used more than thirty ounces of the nitrite since the 26th of January. He now notices this difference in its action. Latterly he finds that though the pain gives way as quickly after an inhalation as at first, yet in a few minutes he feels that it is about to recur; he then takes a few more whiffs from his bottle, and is easy. For this reason the inhalation has to be repeated sometimes three or four times before the attack completely gives way.

For a long time past he has given up the lint, and smells directly from the bottle, which he never fails to carry about him. At night he keeps it within reach. One night his father found him sound asleep, with his hand hanging over the bed, and the bottle held firmly in its grasp. My patient has told me that he would not be without what he calls his "bottle of drops" for a hundred pounds.

He accounts for the large quantity of amyl he has had in this way. He pours about half a teaspoonful or so into a small stoppered bottle, which he constantly keeps in his pocket. After he has used this for one or two attacks, he says that it gets "flat," and fails to produce such good results as fresh amyl, so he throws it away, and replenishes his pocket-companion from his stock bottle. I have thought that this was mere fancy on his part, but having tried myself to deceive him, I found that he was right. What is the pathology of angina, and how does amyl relieve it?

Cardiac cramp, neuralgia of the cardiac plexus, weakness of muscular tissue of the heart, and arterial contraction, have been assigned as one or more of the causes of angina.

In angina, during a paroxysm, the arterial tension as shown by sphygmographic tracings is increased; and when nitrite of amyl is inhaled, the arterial tension is diminished. This difference almost immediately affects the radial pulse, and the alteration is readily perceptible to the touch.

In the case I have described, the pallor, coldness, and arterial tension, followed on the inhalation of amyl by redness of surface, warmth of body, and relaxation of the arterial circulation, indicate that a tonic condition of the arterioles existed, and that the

good effects of amyl were due to its antagonistic effects on the muscular tissue of the arteries, and probably though to medium of the vaso-motor nerves.

V. SYNCOPE. — While puncturing a small abscess in the upper eyelid of Mrs. T——, aged 40, her face became pale, the muscles around the mouth twitched in a convulsive manner, and she would have fallen had I not kept her up. She was carried to a sofa close by, and in a few seconds was perfectly unconscious. The radial pulse could scarcely be felt. I hurriedly poured some nitrite of amyl upon a pocket handkerchief, and applied it to her nostrils. It seemed for a minute to have no effect, but then colour reappeared in the face, and the radial pulse was felt beating rapidly and strongly. At the time this happened I felt certain that the nitrite of amyl was of considerable service: the syncope would probably have continued longer but for its use. How soon she would have rallied after she was put on the sofa in a recumbent posture had the amyl not been employed, it is impossible for me to say. She had never before had a similar attack.

There are many forms of syncope in which this remedy will probably be found to be useful.

VI. EPILEPSY.—What is known of the pathology of epilepsy leads one to think that inhalation of amyl may be of service, both in preventing a fit that is about to occur, and likewise in stopping or diminishing the actual fit itself.

There seems to be in epilepsy some perverted nervous action causing spasm of the contractile fibres of the cerebral vessels, and those also of the muscles of the face, pharynx, larynx, respiratory apparatus, and the limbs generally.

The loss of consciousness is probably due to the fact that, by the contraction of the cerebral vessels, the brain is deprived of its due supply of blood.

I have but once tried nitrite of amyl during an epileptic fit, and the evidence I have to offer is not precise and complete enough to entitle the observation to be considered as a proof of the value of amyl in epilepsy.

A little boy named John Davies, aged three years, was

brought to the Brecon Infirmary on the 5th of September. He had been suffering from fits for twelve months past at the rate of six or eight in the twenty-four hours. A fit lasted from ten to twenty minutes. The history of his case was not simply that of convulsions. The suddenness, both of invasion and of loss of consciousness, and the average duration of the paroxysm, pointed to epilepsy—to “le haut mal.” While the mother was in the waiting-room the boy had a fit, and she at once brought him to me. I applied nitrite of amyl to his nostrils; he got exceedingly red in the face, and in about two minutes was conscious.

The mother said, “She was sure that it helped him out of his fit.” I, too, am pretty certain that it did. He was ordered to take bromide of potassium. From the 5th to the 9th September he continued to have fits, but from the 9th to the 16th he had not had one. I shall watch the case, and perhaps may have another opportunity of trying the amyl.

VII. LARYNGEAL SPASM.—In laryngismus stridulus or spasmodic croup, the spasm of the adductors of the vocal cords and the carpo-pedal contractions seem to point to nitrite of amyl as a valuable therapeutical agent in the treatment of the paroxysm. I have not yet had a chance of trying it.

In whooping cough also it may perhaps render good service, by relaxing spasm of the glottis. Apart from physiological reasons, the only case I have met with that illustrates the action of amyl in laryngeal spasm is the following, and it is one which, I acknowledge, does not entitle me to speak with any authority on the subject.

There is now under my care a young man who suffers from laryngeal phthisis. The laryngoscope discloses some swelling of the ary-epiglottic folds, with slight thickening of the epiglottis.

The other day, towards evening, his dysphonia and hoarseness increased to a very perceptible degree. He said that he had been talking more than usual that day. Thinking there might be some superadded spasm of the glottis, I gave him some amyl to smell, and it had the immediate effect of enabling him to speak with greater comfort. Had there been no muscular spasm, but simply congestion of the vocal cords, it is to be presumed that his dysphonia would have been materially increased, and to

a certainty would not have been lessened, by the action of the nitrite of amyl.

VIII. COLIC AND ENTERALGIA. — In these affections such symptoms as the cool skin, pale face, slow pulse, and spasmodic pains of an ordinary attack, indicate the employment of amyl. More especially would it be likely to be useful in those severe attacks which are accompanied with clammy perspiration, dusky hue, and the general signs of collapse. Dr. Anstie last year stated that he had used it in two or three cases of spasmodic cramps associated with flatulence; and he is reported as having said, "There can be little doubt in my mind that amyl is a prompt relaxer of spasm in the alimentary canal."

I have but one case in point. On the 16th of September I was asked to see Mr. C——, aged 40. I found him suffering from severe colicky pains due to fecal accumulation. The pains came on about every ten minutes or so, each paroxysm lasting about three minutes. I watched three of the paroxysms, and then determined to try the effect of amyl. At the commencement of the fourth pain I gave him ten drops of it to smell. It told quickly upon him. His face became intensely flushed, and directly this happened his pain ceased! In less than a minute the visible effects of the amyl on the cutaneous vessels passed away and the colicky pains returned. The amyl was again used and the pain left. In eight minutes afterwards fresh pains set in; so amyl was inhaled, and simultaneously with the flushing of the face the pain stopped, but again returned as the cutaneous redness disappeared. I then injected subcutaneously $\frac{1}{36}$ th of a grain of atropine, and left him. On my return in an hour after his bowels had acted freely, and he was comparatively easy. This case shows, at any rate, that nitrite of amyl is capable, while it is being inhaled, of relaxing intestinal spasm. The next time I meet with such a case I shall either keep up a more prolonged and gentle action of the remedy by applying continuously, once the flushing of the face sets in, a diminished quantity of the amyl, or else give it internally in doses of from five to ten drops.

Spasm of the pharynx or œsophagus, biliary and renal colic, vesical and urethral spasm, may perhaps yield to the action of

amyl. Hiccup, too, judging from its spasmodic nature, may also be expected to be checked by this remedy.

IX. HEADACHE AND FACIAL NEURALGIA.—I have, during the last week, had under my care a good example of that form of hemicrania designated “sun pain,” the latter name being confined to those instances of the affection in which the pain continues only so long as the sun is above the horizon.

Elizabeth G——, a cook, aged 40, came to me on Wednesday, the 13th September. For the preceding fourteen days she had suffered severely from headache and face-ache. The severe pain was chiefly localised about the right forehead, brow, eyeball, and upper half of cheek, but there was some pain about the left brow and the left molar region. The pains began every morning about nine o'clock and disappeared about five in the evening. She had comfortable nights. She had been sick; vomiting once, or oftener, every day. When seen by me her face was pale, pulse feeble, tongue red. She was suffering severe pain, chiefly in the course of the right supra- and infra-orbital nerves. She was given five drops of amyl to smell. While the characteristic reddening of the face was setting in, she said she felt giddy; she seemed inclined to fall, and probably would have fallen, had I not helped her to a seat. I have frequently known a giddy feeling occur from its use, and look upon it as due to the suddenly induced alteration in the cerebral circulation, or to muscular relaxation. In the present case the giddiness was more marked than usual. In less than two minutes the face resumed its pale colour, but the pain, with the exception of a slight “soreness” about the forehead, had gone. In ten minutes afterwards pain returned in the right forehead, but not in the cheek. I then applied for five minutes, to the right temple, some bisulphide of carbon, as recommended by the late Dr. Kennion, of Harrogate. This gave additional relief, and when she left me there was only a little soreness over the right eyebrow. I prescribed for her nothing more than the ordinary hospital white mixture.

Next day, Thursday, the 14th, she suffered nearly as much pain as on any previous day. On the 15th she came a second time to me. Amyl was re-applied, and this time with complete

relief. I then gave her some in a bottle, to take home, with instructions that she was to use it whenever the pain came on.

On the 16th, at 9.30 A.M., pain returned. She used the amyl, and one inhalation gave her complete ease for the rest of the day.

On the 17th, at 9 A.M., the pain again set in. One application of the amyl sufficed to stave off the attack.

On the 18th, at 10 A.M., she felt some pain, but not much. She used amyl, and no further pain troubled her.

On the 19th, she visited me, for the third time, in order to tell me the result. The pain had quite left her, and she felt as well as usual. She was very thankful for the relief she had obtained, and spoke much in praise of the remedy.

In some forms of hemicrania and headaches the pain is probably in some way connected with cerebral anæmia, the result of arterial spasm. In migraine, and most neuralgias, there probably exists some imperfect nutrition of the nervous tissue, atrophic or anæmic. In such cases it is possible that the increased supply of blood caused by inhalation of amyl may supply the posterior roots of the implicated cerebral nerves with that pabulum which they need.

This case leads me to think that nitrite of amyl will prove a valuable remedy in that form of tic called by Trousseau "Epileptiform Neuralgia."

Nitrite of Amyl as an Antidote to certain Poisons.—I must leave, for future publication, some remarks on this head, which, had space permitted, would now be included in this paper. I will briefly mention that there are well-founded physiological reasons for believing that amyl is in many respects antagonistic to chloral and ergot; that it is likely to be a valuable agent in cases of overdosing by chloroform; and that it is capable, generally, under certain conditions, of counteracting the tendency to death by anæmia, syncope, and apnœa.

Reviews.

A System of Medicine. Edited by J. RUSSELL REYNOLDS, M.D., F.R.S., F.R.C.P., Physician to University College Hospital, Professor of Medicine in University College, London, &c. &c. Vol. III., Local Diseases (continued). London and New York : Macmillan and Co.

THIS long-delayed and much-needed volume will, we believe, be welcomed not only in this country, but in other parts of the world. It is much to be regretted that so long a time should have elapsed since the publication of the earlier volumes ; but we believe the Editor is speaking with literal accuracy when he states that this was caused by circumstances over which he had no control ; in fact, to speak plainly, by the extraordinary dilatoriness of sundry contributors. At the last moment the plan of the present volume had to be changed by substituting the respiratory for the circulatory diseases. We are glad to see that the work will now extend to four volumes instead of three, as originally intended ; for it would otherwise have been impossible to deal adequately with the numerous and important subjects included under "Local Diseases."

The present volume includes the following articles :—Under "Diseases of the Digestive System (continued)" we have Diseases of the Mouth and Diseases of the Fauces, Pharynx, and Oesophagus, by Dr. Squarey. Under Diseases of the Intestines, we have Enteralgia, Enteritis, Obstruction of the Bowels, Ulceration of the Bowels, Cancerous and other Growths of the Intestines, Diseases of the Cæcum and Vermiform Appendix, by Dr. Bristowe ; Colic, Colitis, and Dysentery, by Dr. Warburton Begbie ; Diseases of the Rectum and Anus, by Mr. Curling ; and Intestinal Worms, by Dr. Ransom. Under Diseases of the Peritoneum, we have Peritonitis, by Dr. J. R. Wardell ; Tubercle of the Peritoneum and Carcinoma of the same, by Dr. Bristowe ; Affections of the Abdominal Lymphatic Glands, by Dr. Bristowe ; and Ascites, by the same author. Under Diseases of the Liver, we have Hepatalgia, by Dr. Anstie ; Congestion of the Liver, by Dr. Maclean ; Jaundice, by Dr. Goodeve ; Biliary Calculi, by Dr. Goodeve ; Suppurative Inflammation, by Dr. Maclean ;

Gangrenous Inflammation, by Dr. Maclean; Cirrhosis, by Dr. Goodeve; Acute Atrophy, by Dr. Goodeve; Fatty Liver, by Dr. Warburton Begbie; Cancer of the Liver, Hydatid Disease, and Waxy Liver, by the same; Diseases of the Pancreas are done by Dr. Wardell. Under Respiratory Diseases, we have Diseases of the Larynx, by Dr. Morell Mackenzie; Emphysema of the Lungs, by Sir W. Jenner; Phthisis, by Dr. Hughes Bennett; Cancer of the Lung, by Dr. Beigel; Pneumonia, Syphilitic Affections of the Lung and Brown Induration of the Lung, by Dr. Wilson Fox; Cirrhosis of the Lung, by Dr. Bastian; Apneumotosis, by Dr. Crailly Hewitt; Bronchitis, by Dr. F. T. Roberts; and Pleurodynia, Pleurisy, Hydrothorax and Pneumothorax, by Dr. Anstie.

As to the generally high quality of work which this volume contains we imagine there will be no dispute; indeed, it would be strange were it otherwise, the Editor's position in the London medical world enabling him to select, in most cases, the very authors who were known to have worked *con amore* at the respective subjects. There are some few articles, however, which transcend the others in importance, and of these it may be well to say a few words.

We may first mention the article on Pneumonia, by Dr. Wilson Fox, which, on account of its length, and the exhaustive manner in which it deals with its subject, somewhat overshadows the other essays in the volume. One can hardly help the remark that 183 pages seems rather much to be given to Pneumonia alone, when only 140 pages are allowed for all the Diseases of the Liver. However, this is a mere criticism on the artistic structure of the volume. Dr. Fox's article is, in itself, indubitably good, although it raises questions which some will doubtless be inclined to answer in a different manner from the author's. We may point out what strike us as the characteristic merits of the essay. These are two things: the admirably complete account which it gives of the historical formation of opinion respecting the pathology of the disease, and the excellent clinical picture of acute pneumonia which it includes. In both these respects it may fairly be said that Dr. Fox's article comes nearer to the ideal standard than any previous English essay on the subject.

On the other hand, to many it will seem a retrograde proceeding to deny, as Dr. Fox does, the separate existence of "Cirrhosis of the Lung," and to insist on including all the cases which would ordinarily be classed under that head under "Chronic Pneumonia." We confess that we are decidedly among the malcontents, and were there time we should have our grievance out with him. Meanwhile, it is more important to direct attention to the really valuable points that Dr. Fox has made; and of these there is none more important than his dis-

cussion of the arguments on the subject of bleeding. Our readers may be startled at the idea that there are any advocates, nowadays, of venesection for pneumonia; except for an altogether exceptional class of cases. But in fact, one of the most representative of modern clinicians—no less a man than Wunderlich—has, in quite recent years, put himself forward as an advocate of the efficiency of bleeding on a wide scale; and it becomes a matter of serious moment to estimate the value of his opinion on this matter. Dr. Fox not merely sets forward very clearly, in the text of the article, the reasons for his own decided rejection of bleeding (except as a rare and temporary expedient in cases distinguished by intense congestive dyspnoea in the early stage), but he gives an appendix wherein the arguments, not only of Wunderlich, but of the whole series of defenders of bleeding, are confronted with the damning facts as to the high mortality that follows venesection compared with expectancy (even with expectancy *plus* the idiotic system of *diète*, or starvation), and, still more, compared with the modern feeding and stimulant treatment. This demonstration sweeps away not merely the arguments for bleeding in the abstract, but also the whole special apology from an imaginary change of type in diseases. And we are glad to see that Dr. Fox has had the candour to expressly acknowledge the obligations of medicine to Dr. Todd, for his advocacy of stimulants in pneumonia. We may fairly suppose that the controversy on stimulation in acute diseases has now shaken itself down to a point at which something like equilibrium is possible, and that while every one condemns the use of alcohol in a routine matter, it is agreed by the best men that certain indications of pulse-rapidity and pulse-form, of temperature, &c., imperatively call for stimulants, and that the regulation of the quantity is to be guided entirely by the vital indications in *each individual case*. Dr. Fox very properly remarks, that one of the chief duties of the physician is to look out sharply for the occurrence of the crisis in pneumonia, and to observe the manner in which the organism behaves under the circumstances: he takes great pains to analyse the cases under other authors, as well as his own, in order to decide the question of the critical days, and brings out upon an extensive scale the proof that the fifth or seventh, especially the latter, is by far the most frequently the time of that sudden defervescence which characterises the more ordinary form of acute pneumonia. Dr. Fox's evidence only confirms us in the belief we have long entertained, that for a large majority of pneumonia patients the physician has no active duties to perform, until he sees whether a crisis does not arrive within the first week from the act of invasion; and that the whole mass of "prompt" and "decided" measures applied before this date are commonly either purely

ineffective or actively mischievous. It is when we have found either that no critical defervescence takes place, or else that sudden defervescence is followed by collapse and profuse sweating, that the physician's art first really comes into play in most cases. The exceptions are an exceedingly small number of the cases, already mentioned, in which the mechanical relief of one small venesection is needed; and a larger class, in which the general state is so plainly adynamic from the first as to require throughout a decided stimulation, regulated by nothing except a constant reference to its effect upon the rapidity and form of the pulse. We are glad to see that Dr. Fox recognises the practical utility of the sphygmograph as a guide to prognosis and treatment.

We may just direct attention to the decided manner in which Dr. Anstie, in the article on Pleurisy, pleads for a greatly extended application of paracentesis, now that we possess such excellent instruments for the purpose as those of Bowditch and Dieulafoy (Protheroe Smith), and the low estimate that he places on the power of drugs or blisters to influence absorption of fluid effusions. Returning to the more elaborate articles, we recommend strongly Dr. Bristowe's paper on Obstruction of the Bowels, in which this difficult subject is treated with great clearness and large knowledge. In passing, we may express surprise that Dr. Bristowe does not speak more decidedly on the subject of belladonna as a remedy for those cases in which there is no hopeless mechanical embarrassment; for our own part we have come to the conviction that the use of this remedy under such circumstances is a most valuable practical improvement.

Another article that attracted our attention, chiefly on account of the very rational tone in which it deals with therapeutics, is Dr. Maclean's paper on Suppurative Hepatitis; it is pleasant to see the manner in which he sweeps away the rubbish of old Indian antiphlogistic maxims, and still more pleasant to find that he has recognised in Bowditch's tapping instruments an apparatus by which at last we are enabled to open hepatic abscess with a fair chance of a favourable result. Very important also are his remarks on the fallacies as to the effect of treatment, which have been generated by mistakes between inflammation of the *parenchyma*, and inflammation of the *capsule* of the liver.

While on the subject of liver-diseases we cannot help noticing, among the various excellent papers of Dr. Goodeve, that on Cirrhosis, which is very good on the whole, but which repeats a familiar pathological view of the fallacy of which we are daily more strongly convinced: viz. that alcoholic excess is the almost exclusive cause of the fatal disease known by that name. Now it is needless to say that prolonged alcoholic excess does lead to

a certain amount of proliferation of connective tissue at the expense of the characteristic elements of nearly every important organ in the body—the liver among the rest. Doubtless, also, the influence of drink is not unfrequently a *factor* in the more serious form of the disease. But as certainly is it the fact, that some other and far more powerful element than drink must be the main cause of the fatally progressive form of cirrhosis of the liver. Two things prove this conclusively. The first is the evidence, mentioned by Dr. Dickinson, as to the very small mortality, in drunken Glasgow, from cirrhotic changes either of kidney or of liver. The second is a part of the present writer's individual experience during fourteen years' dispensary and hospital out-patient practice, in which many hundreds of cases of chronic drinking have come under his notice; the same patients, in numerous instances, have been under his eye, at intervals, during the whole of that period. He declares, with the most positive assurance, that the percentage of chronic drinkers who come to their end through fatal cirrhosis is *exceedingly small*. Habitual tipplers (especially of spirit) have a host of ailments, chiefly referable to the nervous system and (after that) to the stomach and intestines; and an immense majority of them die early. But they do not, in any large proportion, develop fatal cirrhosis.¹

One of the most important papers in the volume is Sir W. Jenner's excellent essay on Emphysema of the Lungs. This article is written in a straightforward and business-like manner, and without pretending to any special elegance of style, or indulging in the luxury of "padding," tells its story better and more thoroughly than any other treatise on the subject that we have met with. Emphysema is a melancholy subject, and one in which a journal of therapeutics may be supposed to take only a very remote and feeble interest: but it is something at least to have the clinical history told as clearly as it is here told; and it is very much to have the hopelessness of almost anything but prophylactic measures set before us as distinctly as Sir W. Jenner has done it. It struck us very much, in reading over this article, that emphysema, though one of the commonest conditions to be met with in practice, is really very seldom known much about by medical men. So far as we can gather from what we have seen, most practitioners have but one stereotyped idea of vesicular emphysema, which corresponds to the large-lunged variety, distinguished by the barrel-shaped chest with downward dislocation of the heart, &c., and that the small-lunged or

¹ We are the more particular in mentioning this, because so influential an authority as Dr. Roberts of Manchester has lately referred to the intimate causal relation of drink and cirrhotic liver as "notorious." Doubtless it is notorious, but it is none the less imaginary, in our opinion.

atrophous variety is the source of constant blunders in diagnosis, from being entirely unrecognised.

We have no space to discuss further the numerous interesting articles that this volume contains; we can only congratulate the students and junior practitioners of the present day on the enormous advance which this "System of Medicine" represents, as compared with even the best of the text-books that were current twenty years ago. In regard to most of the subjects treated, all is clear and simple; there is no handing down of traditional jargon that never was founded on anything more than a guess; and if a fault is to be found, it is rather that an excess of candour is displayed, here and there, in acknowledging the difficulties and the discrepancies of opinion that exist on certain points. This is no doubt an error on the right side, if an error at all: and in only one or two instances does it reach a pitch that makes it somewhat bewildering. We have already said that Dr. Wilson Fox, in a very clever article on Chronic Pneumonia, denies the separate existence of cirrhosis of the lung: we must now add that Dr. Bastian expressly affirms it; and what is more, we think he proves his case by his general arguments, and by an exhaustive and elaborate analysis of twenty-seven recorded cases. It certainly does appear to us incredible that the lung, alone, of all the organs of the body, should escape the incidence of so all-pervasive a degenerative change as cirrhosis; a change that assuredly is something very different from inflammation in its origin and its course—that is to say, as we see it nine times out of ten. We observe too, from sundry other remarks of Dr. Fox, that another great battle is imminent respecting the classification and nomenclature of the various diseases which at one time or another have been called tuberculous. We should be sorry to be thought unduly querulous; but the flesh is weak, and we confess that in regard to this subject we are sorely tempted to cry, with the wearied companions of Ulysses,

"What pleasure can we have
To war with evil? Is there any peace
In ever climbing up the climbing wave?"

and that we feel at this moment an unhallowed desire to give it all up, and to refuse to have anything more to say to Dr. Burdon Sanderson, to Dr. Wilson Fox, or Dr. Andrew Clark, or the ghost of the lamented Niemeyer, unless they will consent to go and eat lotus with us in a land

"In which it seemeth always afternoon,"

and where the words "tuberculosis," "catarrhal pneumonia," "infection-process," "fibroid phthisis," and the rest, shall seem

"Far, far away, to mourn and rave
On alien shores."

It would be a great mistake, however, we may say, in conclusion, if the reader of this notice were to close it with the final impression that Volume III. of Reynolds's "System of Medicine" exhibits an increase in the spirit of aimless scepticism in medicine, and the tendency to *dilettante* toyings with the finer fripperies of diagnosis and morbid anatomy, to the exclusion of serious therapeutical aims. On the contrary, we have been struck with the increasing practicability of the writers; and in by far the most of the articles in the present volume we have found the most lucid statements that exist, on their respective subjects, for the guidance of those engaged in actual practice. It is, we believe, a shallow, though a plausible opinion, that regards the present period of medical history as the commencement of an empirical anarchy in which we shall witness the enforced and open renunciation by physicians of all attempts to base therapeutics on a rational foundation. The medical generation that has witnessed the discovery of chloral—the most useful hypnotic (save opium) ever known—entirely from considerations of chemical theory; and that has seen an elaborately ingenious instrument of physiological research (the sphygmograph) applied to the solution of such every-day questions as, "When shall we give alcohol, and how much shall we give?"—that generation, we say, is as little likely to witness the triumph of empiric over rational medicine as any that ever existed.

Clinic of the Month.

Excision of the Shoulder-joint for Disease.—Dr. Ewens, of Cerne Abbas, reports two cases of disease of the shoulder, in one of which an elliptical incision was made, whilst in the other excision was performed by a modification of the single longitudinal incision, both terminating successfully. The first case occurred in a girl, aged eighteen, who originally suffered from inflammation, apparently of a rheumatic character, of the left shoulder-joint. An abscess formed and pointed at the posterior border of the insertion of the deltoid muscle. Six months after, she was weak and emaciated, with almost complete loss of power to move the arm herself, and forced movement excited great pain. There was a second opening above the joint, when the abscess burst, and both communicated with a sinus leading to the posterior portion of the axilla. No diseased bone could be detected by a probe, but it was shrewdly suspected that disease of the shoulder-joint existed. She was placed on a generous diet, cod-liver oil, and iron. The paroxysms of pain were very severe, and, as the disease advanced, became so violent as to necessitate a frequent resort to hypodermic injections. At length, acting on the advice of Mr. Pollock, Dr. Ewens made an exploratory incision, and after some groping discovered loose bone. The ordinary elliptical incision was thus made, the flap dissected up, and the diseased joint fully exposed. The head of the bone was found in a very carious condition, and a portion, shortening the bone by about an inch, was removed by Butcher's saw. The wound was sponged with carbolic acid and oil in the proportion of one part of the acid to four of the oil; the flaps re-adjusted and secured by pins and twisted suture. Sickness due to the chloroform occurred after the operation, but passed off in the course of twenty-four hours. She progressed favourably for ten days, when a slight rheumatic attack supervened, which was cured by ammonio-citrate of iron and bicarbonate of potash. From this date she gradually improved; but a small sinus still remained, which indicating more diseased bone, necessitated a further operation. A small portion of the shaft was again removed, and rapid recovery followed. Fourteen months afterwards the arm was two inches shorter than the

other. There was perfect use of the arm for underhand work, and power to move it behind her and to bring it forwards on the chest. There was, however, no power to raise the arm.—In the second case, a large abscess had formed beneath the right pectoral, and had been opened: a sinus remained beneath the outer part of the right mamma, behind the pectoral muscle, into the axilla, but a long probe failed to reach diseased bone, or to find the end of the sinus. Careful examination elicited the history of a blow over the front of the shoulder three years prior to the opening of the abscess with an account of symptoms of joint disease, but ascribed to rheumatism, in the intermediate period. A swelling was found on the back of the shoulder, and opened by Dr. Ewens, and curdy pus evacuated. Her general health improved, but several times spots of erratic erysipelas appeared on the arm, speedily subsiding under the local application of strong tincture of iodine. As the sinuses did not heal up, an exploratory incision was determined upon, and the wound at the back of the joint was enlarged so as to enable the finger to be introduced under the deltoid, which was then cut through transversely a little below its origin from the spine and acromion process of the scapula, and the joint was thus laid open posteriorly. There was little hæmorrhage. The head of the bone was found to be completely carious, with a large sequestrum in its centre. The posterior half of the deltoid being thus divided horizontally, a perpendicular incision carried through its whole length down to its insertion into the humerus fully revealed the parts to be removed. The patient being very fat, Butcher's saw could not be conveniently used, and the bone was therefore sawn through with an ordinary finger saw, the portion removed representing a shortening of about two inches. The wound was dressed as in the former case, and the patient made a more than ordinarily quick recovery, she being perfectly well in three months. The result now is that the arm is as useful as ever for underhand work; she can lift as heavy a weight as before, and is now, and has been for the last ten or twelve months, managing a dairy. Besides, she can raise her arm forward and upward in a manner that could only be accomplished by the action of the anterior fibres of the deltoid muscle; and with practice Dr. Ewens fully expects much greater power will be gained. (*Lancet*, Sept. 16, 1871.)

Varicocele and its Treatment.—In a clinical lecture on this subject, after noticing briefly the general pathology, etiology, and differential diagnosis of varicocele, Mr. Wood, of King's College, remarks that the treatment he has lately carried out in cases of this disease consists in the application of the metallic wire pressure, applied subcutaneously and with very little dis-

turbance of the parts, by means of a new instrument he has devised and carried out, with the help of Mr. Matthews, to act continuously as a spring tractor. The very ingenious apparatus of M. Ricord was previously the most successful attempt to effect the same results, but it acted upon a silk or hempen ligature applied in a peculiar manner round the vein, and had not the advantages of metallic pressure. Mr. Wood's apparatus consists of a strong steel highly-tempered spring, acting like the spring of a pair of dissecting forceps. One limb carries at the end a thin round steel shaft, about an inch and a half long, which ends in a transversely oval and obliquely placed eye, for transmitting the wire snare or loop, which encircles the vein; the other limb terminates in an arm or hook, round which the ends of the wire are twisted and fastened; the rings upon the two arms are for the purpose of giving a firm hold to the finger and thumb, while compressing and closing the spring. The wire used is the best iron wire, as thin as may be judged strong enough to bear the tension of the spring. It is first dipped in carbolised oil, and passed by means of a long needle in the ordinary way, subcutaneously, first under the veins and then back again over the veins, between them and the skin, emerging through the same cutaneous portions. The ends are then drawn as tight as possible; the loop sinks through its puncture into the tissues out of sight, and the spring tractor is finally fixed by passing both ends of the wire through the oval eye, pressing down the spring firmly between the left thumb and forefinger, winding the wire tightly round the hook and fixing it there. An illustrative drawing is given in the *Journal* from which this account is taken, but it may be stated that the traction is maintained by the tendency of the spring to open. In most of the cases treated by Mr. Wood, the tractor was kept on for a week or ten days, and no pain was complained of. Little or no discharge occurred, and the patients were dismissed cured a few days after the removal of the wires. In all the cases there was a considerable amount of thickening from fibroid deposit in the track of the wire ligature, producing a great amount of lateral support to the weakened vessels, and persisting for a long time. The puncture should be so arranged that the one through which the instrument passes shall be the most depending point in the track of the wire, so that no accumulation of discharge is possible within the wound. It should be remembered that atrophy of the testicle may be coexistent with varicocele, and in most cases is the result of the impaired nutrition consequent upon the continued congestion which results from the varicocele. In most cases, an operation, if performed sufficiently early, will prevent this atrophy, but sometimes the wasting goes on, and may even be considered by the patient as

the result of the operation. He should always, therefore, be informed beforehand of this possible result. (*British Medical Journal*, Sept. 16, 1871.)

Mammary Abscess and its Remedy.—Dr. Joseph R. Beck, M.D., of Lancaster, Ohio, remarks that among all the troubles incident to, or connected with, child-bearing, there is none so prolific of bad results, both to the medical attendant and to the parturient patient, as a mammary abscess. The occurrence of such an abscess in his patient has lost many a physician his reputation in a whole family, and very frequently not only in the immediate family of the sufferer, but even in the whole of a wealthy and influential connection. The attention of the profession cannot be too strongly directed to this fact, that the occurrence of a mammary abscess in a patient recently delivered, and still under observation, is generally attributed to the neglect of the physician in charge. This may appear to be a wholesale accusation, but in his opinion is based upon close observation, and seems to him to be fully sustained by the facts in the case.

It is not the purpose of his article to treat of the symptoms of this disorder, nor to enter upon a discussion as to the relative merits of different plans of treatment, but simply to give the views of *one* observer upon the mode of effectually preventing any abscess of the mammary gland from troubling either the patient or the obstetrician.

The symptoms of inflammation of the gland under consideration are well known to the profession. Whenever these arise, every effort should be made to arrest the secretion of milk; this will relieve the mother, and not necessarily interfere with the well-being of the child, which, if proper care be taken of it, will generally be found to thrive upon good and pure cow's milk, with the occasional addition of a small quantity of lime-water.

The treatment, therefore, is to be begun as soon as there are any symptoms that mammary abscess is likely to occur. He has found the following prescription of service:—

R Extract. belladon. alcoholic., ʒiv ;
Glycerinæ, q. s. ;

mix them to the consistence of a moderately thin paste. This is to be spread in a medium thick layer with a spatula, over and upon both mammary glands, from the sternum to the axilla. Cover with a cloth dipped in olive-oil, and this in turn with oiled silk. Allow the dressing to remain undisturbed during a variable period of from two to three or four weeks, inasmuch as it can be worn by the patient for any length of time without inconvenience.

The argument in the case is directed, of course, to threatening

abscesses; but all will at once recognise the appropriateness of the treatment in cases of still-born children, where it is certainly desirable to arrest the secretion of the milk at once. In these cases apply the remedy within an hour or two after the birth of the child. Dr. Beck has never known this treatment to fail of its desired effects, where it was used in time. (*The Medical Times*, No. 16, 1871.)

Treatment of Footsoreness.—Inspector-General Lawson, with a view of obviating the ineffectiveness resulting from soldiers getting their feet blistered by marching, has directed that medical officers are to apply to their commanding officers to have every man suffering in this manner taken at evening parade to the medical officer, who should cause him to wash his feet, and then to pass a needle with a worsted thread through each blister, cutting off the thread a little distance outside the blister at each side and leaving a portion in it. The part is then to be rubbed with common soap, the sock put on and wetted over all prominent points, and the soap again rubbed over them freely. When properly attended to, no man should be unable to march the following day on account of blistered feet, unless the cuticle has actually been removed, leaving a raw surface exposed. (*Lancet*, Sept. 16, 1871.)

Santonin as a Parasiticide.—Dr. David Page, of Kirkby Lonsdale, states that some time ago the efficacy of santonin in destroying intestinal parasites, and the peculiarities of its effect on the system now and again observed, received a passing notice in the *British Medical Journal*, and he desires to add a remark or two in the same direction furnished by cases lately under his observation. In one of these, a healthy-looking girl, aged 12, was brought to him suffering from loss of appetite, toothache, white and furred tongue, and symptoms generally indicating an irritable state of the primæ viæ. Her mother stated that for some weeks the navel had been the seat of great pain and uneasiness, and there were now much redness and tenderness to touch. The failure of domestic medicine had alarmed her, and induced her to seek a remedy elsewhere. From the symptoms Dr. Page suspected that the *ascaris lumbricoides* was lurking within the small intestines, and so gave her five-grain doses of santonin, to be taken at bedtime, followed next morning by eight grains of the compound scammony powder, to be taken early before breakfast. This treatment was to be repeated for three successive nights; but on the morning after the second dose he was informed that two round worms had come away by stool. One of these was found to measure fourteen inches in length. A week later the medicine was repeated without result, and the girl had already recovered her former good spirits and appetite.

In spite of the large quantity of santonin administered, there was no disturbance to the eyesight or other function. In a second case, occurring in a boy of five years of age, the effect of the administration of santonin was to dislodge a whole colony of the oxyuris, or threadworm, with masses of jelly-like mucus. After the first dose much alarm was excited when it was discovered that the little patient had involuntarily passed, during sleep, a large quantity of urine which stained the bed-linen bright yellow. (*British Medical Journal*, Sept. 16, 1871.)

Extracts from British and Foreign Journals.

Treatment of Itch in Children.—Dr. Monti believes that Fröhlich was the first who suggested that itch should be treated with balsam of copaiba. Dr. Monti himself, however, has made many experiments to determine how long the itch insect will live in the balsam, and finds that it proves fatal in from two to three hours. Proceeding on this datum, he has treated twenty-seven children suffering from this disease with the balsam, and finds that when it is rubbed into the skin of infants it produces redness and sensation of burning, which disappears in the course of half an hour; and that after a single infriktion the itching ceases, and a complete cure, without chance of relapse, occurs in from two to twelve days, without any accompanying disturbance of the urine or digestion. Recovery from *Scabies nodosa* was very prompt; the balsam appeared to exert no curative influence on the eczematous, whilst this plan of treatment was not appropriate to the pustular form of the affection. In all his cases the child was well washed with soap and water, and rubbed all over twice daily with the balsam. Baths were not necessary. Thus it would appear that the treatment of itch in infants is to be specially recommended, since it quickly effects the end in view, causes no eczema, and is less expensive than the similar method of treatment in which Peruvian balsam is employed. The application of a solution of carbolic acid of the strength of one part in one hundred of water for the cure of itch has been recommended by Lemaire and Duviviez. Zimmer washes or bathes children affected with the disease three times a day in a solution containing from five to eight parts of carbolate of soda in one hundred of water. Dr. Monti has treated twenty-six children with carbolic acid. He applies a watery solution in the form of carbolic acid one or two drachms, water a pint, or an ointment in the form of carbolic acid a drachm, simple ointment four ounces. The treatment again on the average lasts from two to four days, or, if eczema be present, twelve days. He has never observed any symptoms of poisoning. This plan produces slight eczema, but causes no pain, is very cheap, and does not require baths. (*Wiener Medizinische Presse*, No. 28, 1871.)

Large Doses of Calomel in Morbus Brightii.—Mr. O. H. Smith states that he first adopted this mode of treatment in the year 1860, in the cases of three boys suffering from dropsy consequent on scarlet fever. In all these the face, body, and legs were highly œdematous, and both pleuræ contained so much fluid that they were in great danger of suffocation. The urine contained so large an amount of albumen, that on boiling it became almost a solid mass. The administration of diuretics and diaphoretics had apparently had but little influence in preventing an increase of the serous effusion; and as a *dernier ressort* the author gave several 10-grain doses of calomel, and then ordered a laxative. In a short space of time free evacuation of the bowels occurred, and from this time forth steady improvement took place, resulting in the perfect recovery of the patients. The boys are now from 15 to 17 years of age, and in perfect health. He does not consider it requisite to follow up the calomel with a purge if this act on the bowels. After pursuing this heroic treatment, Mr. Smith constantly orders the *tinctura ferri sesquichloridi*, which he rightly regards as the best means of combating the diphtheritic quality of the blood in scarlet fever. Again Mr. Smith has employed large and repeated doses of calomel (from twenty to sixty grains) in the treatment of cases of uræmic intoxication in advanced pregnancy, when other measures have proved futile. The therapeutic action of the calomel in such cases, he thinks, is due to its power of exciting certain secret organs of the body, in consequence of which injurious compounds are eliminated. The liver, however, does not in any way belong to the category of these organs, since its excretion is checked during the action of calomel, whilst on the other hand the kidneys appear to play an important rôle. As evidence of this he adduces the fact he has observed, that after the use of large doses the quantity of albumen contained in the urine undergoes great diminution, whilst the urea previously retained in the blood reappears in the urine. (*Allgemeine Med. Central. Zeitung*, 1871.)

Koussine as an Anthelmintic.—At a late meeting of the Royal Society of Medicine, in Vienna, Professor Lienesdorf took occasion to bring before the meeting the advantages of koussine as an anthelmintic for the tapeworm. He stated that the results of the investigations made upon the flowers of the *Brayera anthelmintica* by several chemists, as Wettstein, Pavesi, and Bedall, showed that the active principle was a bitter, acrid resin, which had been named by Pavesi, koussine or tænine. Dr. Bedall, a pharmaceutical chemist in Munich, had obtained this resin in a pure state, and had shown that, besides the koussin, a blackish green resin could be obtained from it, which had already

camphor, and gives it occasionally in exchange for the former three. The patient takes twice a day a warm bath with carbonate of soda and malt. In cases of the so-called dartrous diathesis, Dr. Hedenus employs with advantage the following powder:—

Black sulphuret of mercury,	} āā 3j.
Precipitate of sulphur,	
Crabs' eyes (calcareous concretions of the crab),	
Sugar of mint,	

Mix and take half a teaspoonful three times a day. Towards the end of the treatment, in feeble subjects, he substitutes for the foregoing two or three doses per diem of another powder composed of the following drugs:—

Alcohol extract of nux vomica, 1½ grains.
Brown oxide of iron, 3j.
Sugar of milk, 3iss.

He applies also over the kidneys a galbanum plaster, containing a small quantity of emplastrum cantharides. He also states he has obtained good effects from the ergot of rye, in doses of from two to six grains. (*Journal de Médecine*, June 1871.)

Therapeutic Action and Uses of Turpentine.—Dr. Begbie, in a carefully drawn-up paper on this subject, appears to have collected nearly all that is known in regard to it. *Inter alia*, he makes the following observations. First in regard to the general action of the drug on the animal economy.

The ultimate physiological action of oil of turpentine may be said to be twofold; it is irritant and stimulant. But these actions embrace others which turpentine very notably possesses, and we observe that according as its irritant action is exerted on the intestinal canal, the urinary organs, or skin, it is a cathartic, a diuretic, or a diaphoretic. As a stimulant it acts in producing, when a moderate dose has been taken, a by no means disagreeable sensation of warmth in the stomach, which is sometimes diffused over the greater part of the abdomen and chest. It quickens the circulation, and augments the temperature; moreover, in limited doses, it unquestionably produces a stimulating action on the brain, giving rise to impressions which closely resemble those produced by alcohol, and with these an ability for sustaining mental as well as physical exertion. Should the quantity taken or administered be more considerable, it may cause remarkable effects in the sensorium. Such has been known to produce disorder of the intellectual functions, nearly identical with intoxication.

Occasionally the oil has been observed to cause sleep. Indeed,

a remarkably soothing influence on the nervous system is by no means an uncommon result of the administration of turpentine. Applied to the skin it produces rubefaction and sometimes a vesicular eruption. A scarlet eruption over the skin has also been observed to succeed the internal administration of turpentine. That the external application may be followed by cutaneous absorption is evident from the distinct odour of turpentine in the breath of some persons, over whose chest or other portions of the trunk the warm terebinthinate epithem has been placed. In the same manner the peculiar distinctive odour communicated to the urine by turpentine, that of violets, may be produced. The violaceous odour of the urine here referred to depends upon a portion of the oil having undergone a chemical change in its passage through the system, but while this is taking place, it also appears that some portion of the oil leaves the economy by the urine altogether unchanged. It is not by the kidneys, however, alone that the absorbed turpentine is eliminated. The skin and the bronchial surfaces act in a similar manner. After the administration of a few doses, it may be even a single dose if large, there is a distinct odour of turpentine recognizable over the cutaneous surface, and in the breath. It may be further observed, that while the violaceous odour of the urine is produced after the earlier doses of the remedy, in cases in which its continued administration has been practised, the urine ultimately comes to have an odour altogether terebinthinate, the by no means disagreeable odour of violets being lost. This effect may, in all probability, be accounted for by the more pungent odour of the turpentine concealing the aroma during the increasing elimination of the remedy by the kidneys, for the result of a suspension of the administration of the turpentine is the restoration of the violaceous odour to the urine, before the final disappearance from it of all characteristic smell. The persistence of the violaceous odour is a notable feature. That produced by a single small dose of turpentine may be readily detected in the urine in forty-eight hours. It is much more persistent than many stronger odours which the urine acquires from the ingesta, as, for example, from asparagus. A further effect of turpentine is irritation of the urinary organs, leading not unfrequently to hæmaturia, and apart from any idiosyncrasy or special susceptibility to the irritant action of turpentine on the kidneys which is possessed by some few individuals; there appears to be two modes of administration, after either of which the hæmaturia may come. It may succeed the use of the remedy in a large or considerable dose, given probably with the view of producing catharsis. Here the remedy has either been wholly directed to the urinary organs, the intestinal canal escaping its influence, or, reaching the latter and failing to exert any effect,

it has been reabsorbed, and ultimately attracted to the kidneys. This view seems borne out by the circumstance that, while in one instance the hæmaturia is produced very speedily after the administration of the turpentine in another a considerable time has elapsed before the occurrence of the usual irritation. There is one other interesting circumstance in connection with the action of turpentine on the kidneys. It would appear that the production of the violaceous odour may, to a certain extent, be taken as a test of the integrity of these organs.

However the drug has been introduced into the system, whether by the mouth or rectum, from the skin or by inhalation, this seems to hold good; but the most delicate test is that by cutaneous absorption, and it admits of being proved that a shorter time elapses till the odour in question is produced, and when produced the odour is infinitely more distinct, when no symptom or indication of renal disease is in existence, than when the converse obtains.

Dr. Begbie goes on to say there are other cases to which brief reference is alone required, experience having already incontestably determined its precise value as a remedy. Foremost among these may be noticed its operations as a cathartic and anthelmintic. As a simple cathartic turpentine is rarely employed, and for the good reason that its action, even when administered in large doses, is uncertain. When combined with other purgatives, and more particularly castor-oil, a greater certainty of operation is secured. The combination now referred to is justly esteemed, and, as Dr. Christison remarks, "has often moved the bowels in obstruction from long-continued constipation, after other powerful cathartics had failed." The anthelmintic virtues of turpentine are chiefly prized in tapeworm, and may be ranked with those of the liquid extract of the male shield fern, and pomegranate-root bark. In the treatment of ascarides the remedy is chiefly useful when administered as an enema. It is also efficacious over the lumbrici. Turpentine is a hæmastatic; it arrests hæmorrhage. The interest attached to this action of the drug is increased by the consideration that it also causes one variety of hæmorrhage—hæmaturia. The condition which determines the escape of blood from the capillaries is, however, very different in the two cases. The one is an active hæmorrhage, due to the presence of the absorbed turpentine in the blood of the Malpighian capillaries, causing their irritation and rupture; while the other, that which turpentine cures, is of a passive description, determined, in all probability by a neurosis of blood-vessels. (*Edin. Med. Journ.*, July 1871.)

The Management of the Perineum during Labour.—In a critique on the paper on this subject by Goodell, of which

an abstract will be found at p. 245 of our last volume, Dr. Hart of St. Louis remarks that Dr. Goodell sustains, for the most part, views analogous to those which he has himself entertained and practised for a number of years. But whilst Dr. Goodell and himself agree on some points, especially with regard to the inutility of the methods proposed by authors for supporting the perineum during labour, he is obliged to conclude that he differs in regard to some of the most important indications, and the proper mode of meeting them. He goes on to say that when he (Dr. Hart) suggested some time ago the occasional necessity of inserting one or two fingers into the rectum, it was for the purpose of pressing forward the foetal head, so as to bring the axis of the distending force upon a more direct line with that of the vaginal outlet, and the idea of hooking up the sphincter ani upon the fingers, and pulling it forwards with the perineum towards the pubes, is, so far as he knows, entirely original with Dr. Goodell. Lacerations of the perineum occur most usually (*a*) from the fourchette backwards, and (*b*) from the sphincter ani forwards. More or less laceration in the first direction is perhaps not uncommon, especially in primary deliveries, and is sometimes unavoidable; but it usually heals kindly, and with little or no surgical attention. Lacerations, however, commencing at the sphincter ani and extending forwards usually involve a cleft of the rectum space, and is necessarily a serious accident. Fortunately it is very unfrequent; but in cases where, on its escape from the pelvis, the foetal head begins to press upon the perineum, and to cause protrusion of the posterior margin, with rapid and free dilatation of the sphincter ani, Dr. Hart is unable to agree with Dr. Goodell in the advisability of hooking up the sphincter ani on the fingers and pulling it forwards towards the pubes without touching the fourchette, since, though nature may be thus imitated, it is only in one of those freaks by which the most terrible of accidents are made imminent. The point of attack in these cases is the posterior margin of the perineum, which at every succeeding throe becomes weaker. Would it not be more in accordance with the tactics of a prudent general "who hurries up reinforcements to the point of attack," to depress the perineum, instead of pulling it forwards and crowding its muscular fibres toward the fourchette and leaving nothing but the attenuated posterior wall of the vagina to oppose the advancement of the foetal head in the direction of the anus. After further discussion of this point Dr. Hart suggests the following as comprehending what he conceives to be a proper basis of action. 1. So long as the sphincter ani is not freely dilated, a resort to the bowel for the purpose of adjusting the relations of the foetal head to the maternal soft parts is *not* indicated. 2. If the anal sphincter is freely dilated, and if at each recurrence of pain the posterior margin of the perineum

protrudes beyond the vulva, pass one or two fingers of either hand (as the position of the patient may indicate) into the rectum, and with their palmar surfaces press the foetal head forwards towards the vulva, and at the same time press the fourchette gently backwards, either with the thumb or the fingers of the other hand, so as to bring the vulva as nearly as possible within the axis of the distending force. 3. When it is evident that the head is advancing too rapidly for the safety of the parts, plant the thumb and fingers against it, so as to check further progress until the pain has subsided, and then proceed to rectify the position, or to enucleate the head if it be practicable or expedient to do so. (*St. Louis Med. and Surg. Journal*, No. 3, 1871.)

Indications for Digitalis in Cardiac Affections and the Treatment of Asystolia.—A group of cases affected with organic lesions of the heart having especially called the attention of M. Jaccoud of the Hôpital Lariboisière, the Editors of the *Journal de Médecine* take the opportunity to give a brief *résumé* of his opinions upon these cases, and on the action of digitalis. The clinical lectures of M. Beau, recently published, show that in his opinion digitalis is not, properly speaking, a sedative of the heart, but a regulator of its action: and in fact Beau showed that an individual who, for example, instead of an hypertrophy of the left ventricle, suffered from dilatation of this ventricle, exhibited a notable and rapid change in the differential characters of this last affection under the influence of digitalis. Thus the feebleness of the shock and of the cardiac bruits became much less marked; the action of the heart was evidently rendered more energetic; the pulse became compressible and intermittent, and acquired an unusual degree of resistance at the same time that it approached its normal rhythm. These statements have often been demonstrated by M. Jaccoud at the bedside, by means of sphygmographic tracings. It is in fact beyond doubt that digitalis, when administered in a therapeutic, and not in a toxic dose, augments the energy of the contractions of the heart, and consequently increases the arterial pressure, from which results on the one hand retardation and increased regularity of its beats, and on the other greater facility of the passage of the blood through the capillaries. This fact has been reduced by M. Jaccoud to a kind of aphorism when he remarks that digitalis is indicated when the cardiac energy and the arterial pressure are lowered; whilst it is contraindicated when the energy of the heart and the arterial pressure are augmented. Elsewhere, M. Jaccoud observes, that if the dose of the remedy be excessive, it then acts in the same manner as excitants of the nervous system, producing exhaustion and paralysis of the

heart. The same thing occurs if the excitation resulting from its therapeutic employment be too violent or too prolonged. In the latter case it has a cumulative action, and if the condition of the pulse and of the heart be neglected—if no care be taken to measure the urine, of which the quantity is in direct relation with the tension of the renal arteries in common with the rest of the system, this tension falls, and the invalid may succumb to syncope, or to asphyxia, accompanied by venous stasis. M. Jaccoud insists strongly on the practical importance of quantitative and daily examination of the urine during the administration of digitalis. So long as the secretion augments under the use of the drug, its use may be persisted in, it may even be continued if the quantity of urine remains at about its normal proportion, but if it fall below this and approximate that which it presented at the beginning of the treatment, it may be regarded as a certain sign that the salutary effect of the medicine has passed off, and the limit has been reached at which it begins to be a poison. The condition termed asystolia may be associated with dilatation of the heart, or with other affections of this organ, both acute and chronic; its cause, however, being always relative feebleness of the cardiac contractions. It may easily be understood, then, that when asystolia is once developed, its treatment rests on very simple principles; we must either act by increasing the diminished motor power, or by diminishing the obstacles which oppose their force. Hence we may see in the sphygmographic tracings published by M. Jaccoud, how the same satisfactory results are attained in different instances by digitalis, by caffeine, by brandy, and by bleeding. Digitalis and caffeine act similarly on the motor power of the heart and upon the vessels in stimulating their nervous system, and they augment consecutively the cardiac contractions and the arterial pressure. Bleeding and alcohol, the hydragogue cathartics, as jalap, scammony, and gamboge, remove the obstacles to circulation by diminishing the venous pressure, and thus free the heart from a part of the surcharge which prevents it from contracting. Under these conditions the central organ recovers the power of impressing on the whole arterial system an impulsion sufficient to overcome the capillary stasis, and by this succession of events the course of the blood, which was retarded almost to immobility, is for a time at least re-established. As a general rule, in choosing between these two orders of therapeutic agents, it is advisable to reserve the deflections (bleeding and hydragogue cathartics), for the more serious cases where the danger is immediate, and where the inconvenience of the asphyxia will not permit us to calculate on the absorption of any pharmaceutic agent whatsoever. If, on the contrary, absorption be still possible, if the action the heart be not reduced to a minimum, if the radial artery

pulsate distinctly, if the urinary secretion be still discharged, even though only to a small amount, if the cyanosis and œdema or dropsy be not excessive, if in fact there be time to spare, the treatment of the case by digitalis or caffeine should be commenced.

The preparation of digitalis preferred by M. Jaccoud is the infusion made with the powder of the leaves, broken up just before use. The preparation to be taken by the teaspoonful every hour, or every two hours, is powder of digitalis, 5 to 15 grains, boiling water, 6 ounces. Infuse for twenty minutes, filter, and add a little syrup. The effects of the remedy, as above stated, should be carefully watched. If after two or three days of this treatment it be ill borne by the stomach, its use should be intermitted for a time: or if the urinary secretion do not increase, the danger of its cumulative action should be apprehended. Coffee exerts on the motor nervous system of the heart a similar exciting action to digitalis, and also like this augments the urinary secretion. M. Jaccoud prescribes either the ordinary infusion of the roasted berry or the decoction of the green berry, or lastly caffeine in the form of a pill, containing from 3 to 5 grains. In general he prescribes them together with digitalis, to aid and exalt the action of the latter. If these two agents do not sufficiently increase the urinary secretion, it favours their cardio-arterial action by the addition of some of the ordinary diuretics, such as infusion of broom with a few grains of acetate of potash, or the oxymel scilla, or the diuretic bitter wine of La Charité, which is composed of the following ingredients:—Cinchona bark, Winter's bark, and lemon-root, of *asclepias*, angelica, squill, absinth, melitta leaves, broom, mace, and white wine; when once the accidents of the affection (cyanosis, œdema) have disappeared, it is expedient to stop the administration of the diuretics and resort to simple tonics. The mode of action of bleeding and drastic cathartics has been above indicated. These means have their proper rôle, but when their use is indicated they should not be abused or carried to too great an extent. They should simply be employed as a means of gaining time, and when they have produced their effects they should be exchanged at once for digitalis and its allies. M. Jaccoud does not withdraw more than about six ounces of blood when he directs bleeding to be performed, and after this has been done, prescribes a stimulant potion or infusion of coffee, commencing with digitalis on the following day. (*Journal de Médecine et de Chirurgie de Chaillou et Lucas-Championnière*, tome xlii. cahier i.)

Treatment of Chorea.—M. Wenz of Dörzbach states that he had a girl of seventeen years of age under his care in whom the catamenia had not yet appeared, but who had for several weeks suffered from an attack of chorea of the right side

In the treatment of the case he applied Richardson's ether spray apparatus to the skin of the back over the whole length of the spinal column. The quantity of ether used on the first occasion was about one ounce, and this was slowly applied up and down the column until the skin became quite white, and was rendered thoroughly anæsthetic. The immediate effect produced was that the girl was thrown into a cataleptic state, with suspended consciousness. On several succeeding days he applied the ether in the same manner, but only in quantities of half an ounce. By this means the chorea was entirely removed, and any relapse was prevented by general treatment of a tonic and sustentative nature. M. Wenz concludes by recommending a trial of a similar plan in cases of tetanus. (*Blätter für Heilwissenschaft*, 1871, and *Aerztliches Literaturblatt*, No. 7, July 1871.)

Therapeutic Action of Quinine.—M. Monteverdi, after having made a series of investigations with sulphate of quinine, has arrived at the following results. 1. Quinine exercises a general tonic influence on the organs of the body, and especially upon the uterus. 2. Within half an hour after its administration transient painless contractions which gradually become longer, stronger, intermitting like ordinary labour pains, and last for about two hours. 3. To effect the expulsion of the fœtus and of the placenta about four-grain doses are the most appropriate. 4. Quinine is to be preferred to the secale cornutum on account of its harmlessness, both as regards mother and child, on account of the certainty of its action, on account of the regularity and the natural character of the pains occasioned, and also because it is free from danger at all periods of gestation, in contraction of the pelvis and in incomplete dilatation of the os, and because it can be applied before the discharge of the amniotic fluid. 5. It is further useful, (*a*) in the hæmorrhages of pregnancy; (*b*) in amenorrhœa, consequent on torpid conditions of the uterus; and (*c*) in puerperal fever. 6. On account of its tonic properties quinine is indicated in all affections of the digestive organs of the urino-genital system, which are dependent upon atony of the different organic constituents. 7. If pregnancy be accompanied by any disease calling for the administration of quinine, great caution should be used, lest abortion or premature delivery be provoked. 8. If the action of the quinine have become too energetic, opiates should be prescribed, and quinine as a general rule is contraindicated in hysteria. (*La nuova Liguria Medica*, and *Aerztliches Literaturblatt*, No. 7, July 1871.)

Use of Carbolic Acid to prevent pitting after Small-pox.—Dr. Scott of Dumfries writes to the editor of the *Edin. Medical Journal*, that having experienced the beneficial effects of carbolic acid in preventing disfiguration of the face in severe cases of

burning with gunpowder, and with sulphuric acid, he suggested its employment with this object, in a number of cases of small-pox. It was applied in the following manner. From the first appearance of the eruption, until the completion of desquamation, the face was kept constantly moist with the solution of the acid, in olive-oil (one to eight). The results, he is happy to say, have been most satisfactory of all the cases treated in the Dumfries Infirmary (several of which were of the confluent type); not one has, on recovery, presented the slightest trace of disfiguration. The application, moreover, was most grateful to the patients' feelings, allaying the itching and irritation, and preventing the desire to scratch off the scabs which is so annoying to the sufferers in the later stage of the disease. In the case of gunpowder burning, the acid, in addition to its antiseptic and anæsthetic properties, appears to have the effect of dissolving the carbon and of withdrawing it from the skin. In a case treated about twelve months ago by Dr. Scott by the above described method, the patient, a young gentleman, was so disfigured as to present the appearance of a negro, his face being blackened, his lips swollen and everted, eyelids closed, hair and beard much singed, intense intolerance of light, and profuse lachrymation, with great suffering. The application of the carbolic acid and oil was followed by instant relief, and the oil becoming more fluid from the heat of the skin, ran over the skin with the appearance of thick ink. The result of this treatment was that on recovery, which was rapid, there was not the slightest discoloration of the skin, and the face in a very short time presented its natural appearance. (*Edin Med. Journal*, Aug. 1871.)

Iodine in Passive Congestions.—Dr. J. B. Schmidt recommended iodine as a remedy against excessively frequent menstruation, if no cause for it can be ascertained to be present in the uterus, as well as against chlorosis if it be preceded or accompanied by amenorrhœa; also, as a remedy against cerebral congestion preceded by a "nervous attack." He finds also that iodine, which he administers in the form of the tincture, is indicated by nervous debility, whether caused by disease, loss of blood, or interference with the processes of nutrition. The regulation of the doses he considers to be a matter of great importance; the quantity in many instances should not exceed one drop of the tincture daily. Herr Schmidt has found this drug useful in many cases of diarrhœa when this is attributable to passive congestion, and points out that the experiments of S. Samuel on rabbits demonstrate that hyperæmia of the intestinal vessels and diarrhœa may originate from paralysis of the ganglionic nerves. After extirpation of the solar plexus, great congestion of the intestinal mucous membrane occurs, accom-

panied by considerable increase of the intestinal secretions. Resting on these facts, Schmidt has employed tincture of iodine in cholera and cholera, and with very satisfactory results. (*Berlin Klinische Wochenschrift* and *Aerztliches Literaturblatt*, No. 6, 1871.)

Nitrite of Amyl in Hemicrania.—Nitrite of amyl has been recommended in this affection by M. Oskar Berger of Breslau. He observes that it has been employed in this country as a palliative in cases of angina pectoris administered in the form of vapour. Its composition is $C_{10}H_{11}O, NO_3$, and it constitutes a yellowish strong-smelling fluid of sp. gr. 0.877. When a few drops are breathed, it produces intense reddening of the face with subjective sensation of great heat in the face and head, lively congestion of the conjunctiva, an increase in the rapidity of the pulse of from twenty to thirty beats in the minute, accompanied by considerable diminution of the tension of the radial artery, slight tickling in the throat, and when persevered in, a feeling of vertigo in the head and of anxiety in the præcordial region. These symptoms are immediately removed by sprinkling the face with cold water, and by a few inspirations of fresh air. As Brunton has shown, the remedy does not act on the nervous system, but directly on the contractile elements of the blood-vessels, lowering the arterial pressure by diminishing the obstacles to the circulation. Now Dubois Reymond, as is well known, has expressed the opinion that in certain forms of migraine or hemicrania there is a tetanic condition of the vascular muscular tissue of the affected side, that is to say, tetanus in the region of the corresponding cervical sympathetic. The pressure exerted by the spasmodically contracted vascular muscles upon their sensory nerves is the immediate cause of the pain, just as pain is occasioned when the contraction of the walls of the uterus or intestines is excessive. As an important corroboration of his views, Dubois Reymond observed the pupil of the affected side to be dilated. Many cases, Dr. Berger thinks, support these views of Dubois, and in these cases of "Hemicrania Sympathetico-tonica" it appeared to him that the symptoms observed were precisely those that might be expected to be alleviated by the peculiar effects produced by the nitrite of amyl, for no matter whether the pain in these cases depends directly on the painful spasms of the vessels of the head, or, as Eulenburg and Guthmann think, indirectly on the consecutive anæmia of the affected side, it is obvious that the action of the nitrite of amyl in producing vascular relaxation must immediately set aside the hemicranial paroxysm of pain. Dr. Berger gives a case occurring in a lady aged twenty-four years in which severe hemicrania was experienced periodically, the attacks

commencing in the morning, becoming intense at midday, when vomiting invariably occurred, the pain continuing till late in the evening. The patient remained always in bed throughout the day of the attack, and felt the effects for several days afterwards. During the attacks, the left half of the face was pale, the temporal artery was prominent and felt hard, pulsating so strongly as, in the patient's words, to be quite audible; and she had frequent rigors. Dr. Berger directed her to inhale five drops of the amyl nitrite, and the pain was, as she expressed it, forthwith banished. After the inhalation she felt as if the blood rose strongly into her face, and she experienced a peculiar numbness about the head, but this was unaccompanied by pain—vomiting did not occur. She was able to eat her dinner. After the reddening caused by the inhalation had disappeared, her face became remarkably pale: no subsequent inconvenience was felt. (*Aerztliches Literaturblatt*, No. 7, July 1871.)

The Treatment of Amenorrhœa and Dysmenorrhœa by the Endermic Use of Quinine.—In a new journal, published by Dr. R. Vance, entitled the *Medical World*, is a paper on this subject, by Dr. E. Bradley of New York. He says that some time since he became convinced that many cases of amenorrhœa and dysmenorrhœa depended upon a malarial poison, and he commenced the use of counter-irritation over the spine, followed by the local application of a saturated solution of quinine. In many instances this treatment has been followed by marked improvement. His method of using the quinine is to paint the spine over its lower two-thirds with a liniment composed of oil of mustard three drachms, alcohol two ounces, using a wide camel's-hair brush, and taking care not to allow the solution to cover a wider space than one or two inches. Then, when the surface is thoroughly red, he applies the following: Sulphate of quinine one drachm, water an ounce, and sufficient aromatic sulphuric acid to dissolve the quinine. In applying the essential oil of mustard considerable pain is excited. This immediately ceases, however, on the application of the saturated solution of quinine. In one case, in which suppression had existed for several months, the patient having had intermittent fever for some time previously, and having been treated by the internal administration of quinine *unsuccessfully*, after the use of the counter-irritation and quinine locally for about three months, the menses returned, and she felt perfectly well. In another case there had been great neuralgia of the head and of the uterus; and it was speedily relieved by this treatment. In another case of dysmenorrhœa with obstinate constipation of the bowels, the patient was entirely cured, and has not suffered from constipation since. Dr. Bradley remarks that he is well aware

that many physicians are of opinion that quinine cannot be absorbed unless the cuticle is broken; but he is confident that in no instance when it has been used under his observation has there been any rupture of the cuticle, whilst he feels confident, not only that the quinine was absorbed, but that it had a very decided effect in bringing about a cure. There seems, he observes, no good reason why quinine should not be absorbed through an unbroken skin, as well as mercurials or belladonna, and bitartrate of potash applied (in solution) over the kidneys in cases of uræmia, several cases of which latter have come under his observation. (*Medical World*, August 1871).

Turpentine as a Parasiticide.—Professor V. Erlach, of Berol, recommends turpentine as a means of destroying parasites, which are the cause of certain diseases of the hairy scalp. Kuchenmeister recommends alcohol, which retards or arrests the development of spores and fungi. Experiment has, however, shown that the action of alcohol does not extend to those fungi which develop in the follicles of the hair. Tincture of iodine acts better than alcohol. Yet, even in favourable cases, it is requisite to continue the use of the remedy for at least three months. V. Erlach applies turpentine with a brush to the parts affected, and states that it acts better, more surely, and more rapidly, than any other means he has tried. He states that he has thus cured a case of herpes tonsurans in seven weeks, and several cases of mentagra in a week. (*Journal de Médecine*, Juin 1871.)

Notes and Queries.

DEPARTMENT OF ANALYSIS AND INVENTIONS.

How to obtain pure water is a question of very considerable importance at the present time. We propose therefore to examine into the efficiency, or otherwise, of some of the filters most prominently brought before the public, restricting our inquiry for the present to their action on water such as supplied by the various London Water Companies.

NO. I. THE LONDON AND GENERAL WATER PURIFYING COMPANY (LIMITED).

Cistern filter No. 1, price 1*l.* 10*s.*; animal charcoal renewed when required at a charge of 5*s.* Delivers about half a gallon of water per minute. The filter is placed within the cistern, and when once set going requires no further attention until the animal charcoal requires renewal.

One of the above filters had been in use for four years, about half to three-quarters of a gallon being drawn daily, when the first sample was taken for analysis and compared with the water taken at the same time direct from the cistern. The animal charcoal in the filter was then renewed; and, after about a fortnight's use, a second sample was taken, as before, from the filter as well as from the cistern. Before the samples were collected the tap of the filter was fully opened, and the water allowed to run freely through the filter for the time of four minutes. The analytical results are given in the table below :—

	OLD FILTER.		FRESHLY-CHARGED FILTER.	
	UNFILTERED WATER.	FILTERED WATER.	UNFILTERED WATER.	FILTERED WATER.
Colour in 20-inch tube . . .	Slight greenish	Colourless	Slight greenish	Colourless
Hardness on Clark's scale .	12·5	12·2	13	13
GRAINS PER IMPERIAL GALLON.				
Chlorine	1·050	1·050	0·980	0·980
Nitrogen in ammonia . . .	0·0017	None	0·0012	0·0008
Organic nitrogen	0·0095	0·0059	0·0069	0·0029
Nitrogen in nitric acid . .	0·0553	0·0565	0·0738	0·0692
Total by residue	16·24	15·82	16·94½	16·38
Oxygen absorbed from per- manganate of potash . . }	0·0056	0·0022	0·0045	0·0011

We reserve any remarks on these figures until some of the other filters have been examined.

CORRESPONDENCE.

PITTING FROM SMALL-POX.—Dr. Rendle, of Park Hill, Clapham Park, sends us the following:—"The terrible seaming and pitting of the face, neck, and other exposed parts of the body so often consequent on bad attacks of small-pox are universally known. Reference, however, is seldom made to the total exemption of the scalp from marking of any kind, after even the severest form of this disease. During the last few years I have habitually sought out and examined men and women badly marked from small-pox, for the purpose of ascertaining how often, and to what extent, the scalp was also marked. Many cases have passed under my notice in prisoners admitted to the Government prisons. The scalp in every case was without a trace of marking. I have repeatedly seen both men and women seamed and pitted as badly as possible, but I have invariably found that all marking ceased at the border of the hair. The covering afforded by the hair had evidently preserved the scalp from injury and from subsequent pitting.

"It recently occurred to me, from watching a photographer using cotton-wool to shut out light in the process of 'vignetting' photographs, that this material, if applied to the face and neck of small-pox patients, might give a protecting influence somewhat similar to that afforded to the scalp by the hair, and thereby prevent or modify the subsequent pitting.

"I have now two cases convalescent from small-pox, in which I applied cotton-wool to protect the face. The disease in each case was of the distinct form. One of the two, a girl, age fifteen years, had an abundant eruption, which, in the unprotected parts of the body, went through the usual consecutive changes. In both cases, the parts covered with the wool are left without a vestige of marks.

"The mode of application was as follows:—On the first appearance of the eruption, patches of skin about an inch square were washed over with collodion, and immediately covered with a *thin* uniform layer of fine wool: the wool readily adheres if applied before the ether of the collodion evaporates. When the whole of the face, &c., was thus covered, the wool was brushed over with a solution of starch or gum. The starch or gum was occasionally reapplied to the edges of the wool to prevent any shifting by the movements of the face. This covering was kept on until the dry crusts fell off the other parts of the body.

"These cases are not given with the conviction that the disfigurement resulting from small-pox may be invariably pre-

vented, but rather for the purpose of calling attention to, and inviting further trial of, this mode of treatment."

HUILE DE CADE IN ECZEMA, &c.—Dr. Newcombe, of Gateshead, sends us the following note:—"Having found the above preparation particularly efficacious as an outward application in many cases of eczema of the scalp, especially those which so closely resemble pityriasis, I was induced to try it in eczema of a dry character in other parts of the body, and did so with marked success. I have lately used it in a case of 'psoriasis diffusa' extending from both knees down the front of the leg, and also appearing on the fore-arm, which had baffled the ordinary plan of treatment for a long time; and the improvement was so immediate that it could not be entirely due to the arsenic which the patient had been taking.

"I direct my patients to rub it well over all the spots every night with a camel-hair brush."

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¹ Any of the foreign works may be procured on application to Messrs. Dulau, of Soho Square, W.C.; or Williams & Norgate, of Henrietta Street, Covent Garden, W.C.

THE PRACTITIONER.

NOVEMBER, 1871.

Original Communications.

OBSERVATIONS ON THE THERAPEUTICS OF THE PRESENT DAY.

[BY HENRY KENNEDY, A.B., M.B.,

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THE subject of therapeutics has of late attracted a large share of attention from the profession. Books, periodicals, papers, reviews, clinical tracts, and memoranda have all appeared recently. Nor need we wonder at this: for assuredly of the several branches into which medicine divides itself there is none of greater practical importance. In the following paper I would make a few remarks in connection with this subject, which appear to me specially called for at the present time; and I know not that they could appear in any more appropriate place than in the pages of *The Practitioner*; which has so successfully supplied a want long felt. Before entering, however, on the more immediate object of the paper, I would call attention to two points. In the first place, I cannot for a moment agree with those gentlemen who have described therapeutics as being in a state of the most complete chaos; or others who have said, and

put it in print too, that it will be necessary to begin the study of it again, *de novo*. On the contrary, ever since what is known as Polypharmacy ceased, and this is more than a century ago, therapeutics have made steady progress, and, what is of more moment, the quality of the work achieved has not been, nor do I believe it can be, surpassed at the present day. This may seem a strong statement, and yet it seems to me fully borne out by reference to indisputable facts.¹ Hence I conclude we are not to begin *de novo* ; but to take up the science at the point where our predecessors left it.

There is, however, a second, and possibly a still more important point to notice here. There seems to me great danger in expecting too much from the pursuit of therapeutics. A considerable number of the papers which have recently appeared on the subject speak of the necessity of putting it on a scientific basis ; and in point of fact would lead the reader to suppose that it could be made an exact science. Now I do not believe this is possible, and I think the sooner it is understood the better. It has ever appeared to me most important that we should have clear views of what it is we may hope to reach, and the limit beyond which we cannot go ; and in the study of no medical subject is this of more consequence than that of therapeutics : for certainty, or even an approach towards it, cannot be attained. It is not in the nature of things that it could be, and so we must rest satisfied with a limit falling far short of certainty. This is not the place to enter into the reasons of the difficulties which surround the subject. I shall, therefore, merely state in a general way that the data on which anything of an exact science might be based, are ever varying. Were it otherwise, were our medicines and our frames always the same, then indeed therapeutics would make rapid strides, and become necessarily as fixed as mathematics itself. But is this so, or does any one expect it can be ? The answer must be in the negative, and I repeat it is essential, in a matter of this sort, that our views should be clear

¹ The works of Withering, Duncan, Fowler, Blackhall, Bardsley, and Fothergill, may here be quoted ; and many others could be added, to say nothing of a host of essays and papers of the highest practical value. And I would add, that whoever would make out a simple list of all that has been done within the last century would confer a great boon on the profession, even were he to confine himself in the strictest way to what is understood as therapeutics.

as to the point which may be reached, and the limit beyond which we cannot go.¹

Besides, however, the need of keeping our expectations within certain bounds, there are other causes which help to retard the progress of therapeutics; or at least prevent it making such rapid strides as it might, in reason, be expected to do. To some of these I would now ask attention. And in the foremost place I would put scepticism, as to the effects of medicines on our frames. It is quite unnecessary to give quotations of the truth of this statement. However much this is to be regretted, it is certainly the fact that a considerable number of minds doubt the efficacy of drugs. They seem to be so constituted that they cannot trace cause and effect. Some one medicine fails them, and they become sceptical of all. Under ordinary circumstances this is bad enough; but it becomes very much more serious when it happens with those in authority. If teachers or those connected with hospitals possess the class of mind of which I am speaking, they must necessarily retard the progress of therapeutics. For it is in hospitals, beyond all places, that experiments in therapeutics can be successfully carried out: and all that has been already done, and to which allusion has been made, has been there accomplished. And here is probably the best place to notice the statement that the physician does not or cannot cure disease. This idea, of late years at least, seems to have originated in the work of the late Sir John Forbes, who taught that nature did everything, and art little or nothing, in curing disease. I cannot but look upon this as a grave mistake; nor have I found diseases, when left to themselves, to run the course which he indicated.² Whilst saying so much, however, I would be slow in running into the opposite extreme, by saying that art did everything. This would be just as bad on the other side. I believe the proper way of putting the matter—and which we should keep ever clearly in mind—would be, that the physician treats and, with the assistance of nature, cures disease. From this point of view it is certain the physician is a curer of disease;

¹ In the course of this paper, the two points I have just noticed will be more fully brought out.

² In another place the attention of the profession has been called to this special point.

and indeed the effects of some medicines are so decided that, even in the very strictest sense of the term, he may be said to cure disease. The effects of hydriodate of potash, of arsenic, mercury, anodynes, and many others, may be given as examples in point. But this part of my subject is too extensive to follow out here.

Another cause which has greatly impeded the advance of therapeutics has been the varying doses in which drugs have been administered at the present day, when compared with former times. From what this has arisen is by no means easy to say. Homœopathy, or scepticism, or a forgetfulness of the effective doses of drugs, or all combined, may have led to this result. Certain it is that it exists, and to a degree which those who have not inquired into this specific point would scarcely credit. To myself it appears essential that drugs, to be effective, must be given in what has been called their physiological dose;¹ that is, a dose sufficiently large to produce their specific effects. That the writers of the last century were familiar with this fact is quite clear from their writings; and hence, I believe that as practitioners they were not surpassed, if indeed they were equalled, by any of the present day. The details of their cases prove that they used drugs with a master hand. As examples of medicines which were used in much larger doses by our predecessors than at present, I may mention columbo, dandelion, valerian, bark, the mineral acids, hemlock, nitrate of potash, &c.; and as bearing directly on the same point, I may mention the great extent to which counter-irritation—in the form of issues and artificial eruptions—has been used, and with what decisive success. Yet this great remedial measure has not only fallen into comparative disuse, but has actually been written against, and that recently. Now, if we thus ignore the labours of those who have preceded us, what, I ask, can result, but that therapeutics must remain stationary, if indeed they do not retrograde? and if valuable drugs be given in too small doses, medicine must inevitably fall into discredit. I do not know that there is any single point, in connection with the present subject, which calls for more thorough investigation than this one. Hence it has appeared to me worthy of a special notice.

¹ At the present day this is generally recognised; but I have reason to know it is frequently not carried out in practice.

In direct connection with the doses of medicines I would mention another point, in which it seems to me our predecessors had greatly the advantage of us. They gave drugs in a, comparatively speaking, simple form. Whenever the medicine allowed of it, it was given as a powder; whereas with us there seems to be the strongest tendency to change, and then prescribe our medicine: and every one must be aware of the great efforts which our leading pharmacutists are constantly making, by which indeed I admit the medicines are more concentrated, and given in a pleasanter form. But just by so much as these points are gained, I hold that the efficacy of the drug is likely to be lessened: and whether it be decoction, infusion, or extract, it is all the same; though not to the same degree in all. Thus with extracts it is notorious how much they vary, even when the greatest care is taken in making them: and if it be even granted that a few houses can supply them at a uniform strength, what, it may be asked, are the chances of the public at large being so supplied? I have said that several valuable drugs used to be given in the form of powder; and I revert to it again because it seems to me a point of much consequence, and in none more than this, that it is the very best mode of ascertaining the value of the drugs; which, not having been subjected to any process, by heat or otherwise, is thus taken in its normal state, and if it have any virtue will surely exhibit it. We know that vegetable substances are not the simple bodies they appear; but that they all contain ingredients in addition to the one which gives them their specific character. Now, any preparation of them always seems to me to lose some one or more of these ingredients, and by so doing lessens the value of the drug; and as a matter of experience I have ever found medicines which can be given in the form of powder the most efficacious. As examples I may mention bark, ergot of rye, and columbo. Valuable as quinine undoubtedly is, and possessed of what may almost be called specific properties, there are yet cases in which it will fail, though apparently well suited for the case.¹ In some of these the bark in powder will

¹ See "An Essay on the Action of Quinine," in the St. Thomas's Hospital Reports, by E. Clayton, M.D. It is excellent in both style and matter; as is also an essay, by M. Madden, M.D., "On the Use of the Chloral Hydrate," published in the *Dublin Quarterly Journal*, for May 1870. In each of these essays, the point of which I am speaking is very well illustrated.

succeed ; and this reminds me of a very common oversight made on this point. For many think, if they are giving quinine, they are giving bark ; a great mistake and which ought to be avoided. In my own hands, as for instance in cases of chronic rheumatism, the bark in powder has certainly been more effective than quinine. So again with ergot, the powder has held its ground, as every one knows, against any other preparation ; and I believe it will continue to hold it : and as to columbo no preparation of it can be compared with the powder. There is one medicine, however, which can be given in powder, and which calls for more than a passing notice here. I mean sarsa, about the virtues of which such contradictory evidence has been given. How this has arisen it is not easy to say ; except possibly that it has not been given in a sufficient dose. Very many years have now elapsed since the virtues of this drug were fully established, and by experiments made for the very purpose of ascertaining the point. Nowadays, however, it seems necessary to overlook or ignore the fact, and hence some of the discrepancy which exists. For myself I have no more doubt of the great efficacy of the drug than I have that sulphate of magnesia acts as a purgative. It has succeeded in my hands when hydriodate of potash and other potent remedies have failed. In addition to its virtues, however, there is another reason why it should be spoken of here. Its price in the market is always high, and from the way it is commonly used, it becomes a serious item of expense, especially in hospital practice. A pint of the decoction—and less than this in the day is useless—requires $2\frac{1}{2}$ ounces of the root, according to the British Pharmacopœia.¹ Now, if the powder be used, two or at the outside three drachms in the day is amply sufficient, and, I hesitate not to say, will be found most efficacious in all cases in which the drug has been found to be of use. Hence given in decoction it is more than six times as expensive as in powder ; and this seems to me a matter of considerable moment.

On the whole, then, and speaking of the administration of vegetable substances in the form of powders, I would repeat that it seems to me the most efficacious method of using them ; and that as we give them thus in their simplest form, and therefore as free as may be from having their virtues injured, so the con-

¹ The decoction of a former pharmacopœia was a much superior preparation.

clusions at which we will arrive must be the most definite and constant; and I would venture to suggest that any experiments undertaken in the future should be carried out in this way. It is quite clear to me that no series of experiments carried out with the same drugs, but under other forms, could compare with the way indicated. If this were once properly done, and of course on a sufficiently extended scale, no subsequent trials, no matter in what form the drug was given, could vitiate it; and in so far we would reach the only approach to certainty of which the nature of the subject admits;¹ whilst we would get the feeling that the art was accumulative, and necessarily progressive and improving. Before leaving this subject I would just observe that medicines given in powder are by no means pleasant to take, and that some few stomachs will not bear them at all. But these objections are of secondary moment in a matter of this kind; and have scarcely any weight in hospital practice, where our experiments must chiefly be conducted.

There are many other points, in connection with the administration of medicines, which would call for notice here. I can only now glance at some of them. Thus there is nothing more common than to see, in the periodicals, cases treated successfully by such and such a medicine. When we come however to read the account, we find two, three, and even four medicines all given at the same time. Very recently I read that sulphurous acid was a specific remedy for typhoid fever, rendering a death next to impossible in this disease; but when I looked into the article I found that the writer added sulphuric acid and opium in every instance where the attack was severe.

But further, it is by no means uncommon to recommend a special medicine for some special diseases; thus iron has of late been put forward as a remedy for erysipelas, diphtheria, and rheumatism. If we inquired however in what form the author gives it, we always find it to be the tincture of the perchloride. Now I do not deny that iron is a most valuable drug, and may for what I know suit these diseases very well; but I do say positively that the effects of the acids which enter into this particular preparation should not be overlooked. Each of them

¹ The works already quoted fully bear out this statement; as far as they go it would not be possible to improve upon them.

has in turn been proved to be a valuable medicine, and more especially the muriatic acid. Hence any good effects which may result from this preparation of iron—it cannot be called a drug—ought to be so far qualified by the fact that we are giving three medicines, and not one. This part of my subject might be pursued much further ; but I merely wish here to draw attention to the errors into which we may, in this particular way, be so easily led : and I shall therefore only add, that as it is a very loose way of conducting therapeutic experiments, it ought for the future to be specially avoided.

Though somewhat misplaced here, there still remains another point, in connection with the administration of medicines, to which our predecessors paid much more attention than, as far as I am aware, is now done. I allude to the use of diluents. Any one who has looked into their writings, cannot fail to have observed the great importance which they attached to this principle. That the effects of medicine are materially modified by it, and commonly for the better, admits of no doubt ; and whether it be purgatives, diaphoretics, or diuretics, it is all the same. When diluents are freely used, less medicine is required ; and on the contrary, medicines frequently fail, or will begin to act only after their use. It is obviously owing to this principle that the marked benefits resulting from the use of spas are, in a great measure, due. The amount of salts in these waters is known to be very small ; yet their effects are very decided. No doubt other causes are in operation ; but the effects of large dilution cannot be overlooked : and it was in imitation of this principle that our predecessors adopted it. This is not the place however to do more than call attention to the principle, which it may be observed in passing is more thoroughly carried out with some of the lower animals, as the horse, than amongst ourselves.

So far I have been speaking of a few points in connection with therapeutics, which, being more or less under our control, we ought therefore to use our best efforts to improve and, as far as may be, render perfect. But there is another aspect in which this important subject must be considered, and which cannot be ignored. I mean, the contemplation of our own frames, and of that wondrous machine on which all our drugs and chemicals

are expended. How is its endless variety to be reached? I do believe that the human countenance itself is not more varied than is the constitution, and that no two of these are identical, nor any two cases of disease. But further, this very constitution itself does not remain, if I may so speak of it, a fixed quantity. There are very good grounds indeed for believing that our constitutions vary much from year to year, as diseases notoriously do. Then there are temperaments, idiosyncrasies, and habits of life, each of which must be considered. But, above all, the mental part of our being, so mysteriously connected with the physical frame, and capable of influencing its several functions to such a degree, is never to be overlooked. When then, I say, we come to look at the subject from this point of view, we can readily understand the difficulty with which we have to contend, and the reason why therapeutics can never reach the point we should all wish for,—that of an exact science. Were there no other obstacles in the way than what our frames alone present, I believe there would and ever continue to be a state of things which must leave our best directed efforts uncertain. There must, however, be added to all this again our total ignorance of how medicines act on our frames. We know that tartar emetic sickens, opium soothes, and mercury salivates; but the how or the why remains a mystery, and will, most probably, ever do so.

It may, however, be asked here, Are there no means of remedying, or at least lessening, these difficulties? I believe there are; and foremost amongst these I would place human physiology, with which, and taken in the very widest sense, we cannot be too familiar, and without which our therapeutics would not deserve the name of a science at all. It is this knowledge which gives a certain amount of precision to our prescriptions, and without which we must ever be groping in the dark. It is true that the physiology of the human frame is amongst the most abstruse and difficult of pursuits. Witness the efforts made to ascertain the precise effects of alcohol or tobacco on our frames; or the absolute solving of the question as to what acid exists in the gastric juice. In addition to this, too, every day's experience is now showing us what extreme caution is requisite in generalising from experiments made on the lower animals.

The difficulties of a subject, however, must not deter us from doing what we can, and we may hope that, in time, every law of our frame will be completely made out.

The second and last means I shall speak of here, for meeting in part those difficulties which arise from the natural construction of our own frames, is what I must call "tact." I do not use the term here in a low sense, but as implying a kind of knowledge of the greatest practical value, which every one must learn for himself: for it cannot be communicated. It may be described as scientific empiricism, and it is certain that all the master minds in the art of therapeutics possess it. Amongst the same class of medicines, let us suppose astringents, it teaches us to select the one which will be most useful; and, on the contrary, it will often enable us to say that such a medicine will not answer at all. It is personal experience of the actions of drugs on our frames, at the same time that this experience is guided by our knowledge of physiology. This part of my subject might be enlarged upon to a great extent, but enough has been advanced for my present purpose.

In concluding these remarks, which from the great extent of the subject must necessarily be disjointed, it may be well to throw into a series of propositions the leading points to which attention has been called:—

1. That the proper position the physician holds, in reference to the administration of drugs, is, that he treats and, with the assistance of nature, cures disease by their means.

2. That in our endeavours to improve therapeutics too much must not be expected, inasmuch as there is a limit beyond which we cannot pass, and this limit is and must remain far short of certainty.

3. That if we ignore the labours of our predecessors we will commit a grave mistake; for they have left after them a mass of therapeutic facts which it would not be possible, even at the present day, to excel; and therefore our labours should begin where theirs ended.

4. That the physiological dose of each drug is the proper one to use, as it is only then its therapeutic virtues can be ascertained.

5. That at present the doses of many drugs are much smaller

than our predecessors used ; and therefore the results in our hands cannot but be unsatisfactory.

6. That our predecessors, wherever it was possible, used medicines in the form of powder, which had the great advantage of being free from any risk likely to be caused by any other mode of preparation.

7. That experiments thus made must lead to more definite results, than any made with other preparations of the same drugs.

8. That compound medicines, like the tincture of perchloride of iron, should be recognised as such, and not as simple drugs.

9. That the use of diluents is a very important principle to recognise in treating disease.

10. That a knowledge of human physiology is essential to give anything of a scientific status to our therapeutics.

ON EUCALYPTUS GLOBULUS.

BY DR. M. C. MACLEAN, C.B.

Eucalyptus globulus, the "blue gum tree" of the Australian colonist, belonging to the "lordly genus" *Eucalyptus*, is, like the numerous other species of the genus, common over the whole Australian continent, although its gum is known in commerce chiefly as the "blue gum of Hobart Town."

The trees of this genus are known for the rapidity of their growth and the gigantic dimensions to which they attain, as well as for the volatile aromatic oily secretion of their leaves and astringent resinous matter contained in their bark.

This species has been lately introduced into the South of France, where it flourishes almost with as much vigour as in Australia, or the Malayan Archipelago.

The species *E. resinifera*, which produces the *kino gum*, or "red gum of Australia," is better known on account of its medicinal qualities, the gum being a household remedy in that country for diarrhoea. It now appears that *E. globulus* possesses medicinal properties which promise to raise it to a high place in the estimation of practical physicians.

My friend and colleague, Surgeon-Major Mackinnon, C.B., brought me some leaves of this plant from the South of France, and some cigars made from the leaves, requesting me at the same time to make trial of them in cases where the use of antispasmodic remedies seemed called for. Accordingly, I have used them in the medical wards at Netley, in cases of chest aneurisms involving pressure on the vagus or its branches, and in cardiac asthma, with marked benefit. As I have elsewhere shown (Army Medical Reports), we have too many opportunities of dealing with thoracic and abdominal aneurisms at Netley, where such affections are seen in greater numbers than in any other hospital in the kingdom. The distressing symptoms in-

duced by pressure on the vagus or its branches by aneurisms rising out of the chest and invading the neck, are too well known to need any description here. With the exception, perhaps, of the subcutaneous injection of morphia, I know no remedy so efficacious in allaying pain, restoring dyspnœa, calming irritation, and procuring sleep in such cases, as to be compared with *E. globulus*.

In the surgical division of this hospital, there was last summer a case of aneurism of the aorta, rising as high in the neck, on the right side, as the omo-hyoid muscle. For some time after his admission, this patient suffered little or nothing from nerve pressure, but as the case advanced the symptoms due to this cause appeared. At first they were relieved by bromide of potassium; after a time this failed to give relief. Recourse was then had to the use of *E. globulus*, with the same remarkable effect as when used in the medical wards in like cases, and both Mr. Longmore and Mr. Mackinnon, under whose care the man was, assure me that so long as the supply of the remedy lasted, the poor man's sufferings were abated by it in a very striking manner. In the course of last summer we had a patient in one of our medical wards with an aneurism of the arch of the aorta, situated immediately behind the manubrium of the sternum, which produced so much pressure on the trachea as to flatten out this tube and cause absorption of some of its rings. This man's sufferings were extreme. For many weeks he hardly ever was observed out of the sitting position with his head inclined forwards, in the manner so characteristic of aneurisms in this situation. The only relief we were able to extend to this suffering soldier was by means of cigars of *E. globulus*, which he frequently smoked; under the soothing influence of which he was able to get snatches of rest in the recumbent posture.

In cardiac asthma we have obtained results as favourable; and I have known it to allay the terrible dyspnœa of this affection, when the patient was incapable of smoking the leaf as a cigar or in a pipe, by burning portions of the leaf in a plate near the patient, in the way nitre-paper is familiarly used. I am informed by Dr. Frank that a tincture of the leaf is made in Germany, and has been used successfully in ʒij doses

in the treatment of intermittent fevers.¹ It is even asserted that under its use relapses do not occur. It is possible that this may to some extent be true as regards the comparatively mild forms of malarial fevers observed in Germany, but those who are familiar with the formidable types of this class of fevers in tropical countries, and know the obstinate manner in which ague clings to its victims and recurs under a great variety of causes, even when the sufferers have not been exposed to fresh charges of malaria, will receive such a statement with reserve. Should it be even approximately true, *E. globulus* will prove a boon of much value, not only to residents in malarial localities, but to Governments having troops serving in such regions. I hope to have the powers of this tincture as an anti-periodic tested on the persons of our malaria-struck invalids from India next summer.

I incline strongly to the opinion that the action of *E. globulus* is on the nervous system, particularly the vagus. I have never seen it cause "flushing of the face, warmth of head, face, and neck," shown by Dr. Talfourd Jones to follow the inhalation of nitrite of amyl in like cases. The smoking of the leaves of *E. globulus* does not induce effects so sudden and striking as those described by Dr. Talfourd Jones in his interesting paper in this journal for October; but it has this great advantage, it is perfectly safe, and patients may be allowed to use it at discretion. Indeed, I am told that asthmatics in the South of France, where its properties are known, mix the broken leaves of the plant with their tobacco.

Although I have given details of only two cases, the most severe in which I have seen it tried, I wish it to be understood that I found the good opinion I have given of the therapeutic power of *E. globulus* on its observed good effects in some other cases.

Let no man despise this remedy on the ground that it is merely a palliative; if a more extended experience justifies what I have written about it, practitioners will be grateful for an agent that without risk can secure for their patients some hours of rest, and oblivion of their sufferings.

¹ *Vide* Lorinser, Wien. Med. Wochenschrift, No. 43, 1869; reported in Virchow, Jahresbericht, 1869, vol. iv.

A CASE OF TRAUMATIC DISLOCATION OF THE CRYSTALLINE LENS INTO THE ANTERIOR CHAMBER.

BY W. SPENCER WATSON, F.R.C.S.

Surgeon to the South London Ophthalmic Hospital.

CASES frequently occur in practice where the surgeon deems it advisable to depart somewhat from the ordinary plan of operation; and I take it that one of the greatest uses of this valuable Society¹ is in the opportunities it affords its members of bringing such instances under discussion, to defend the course they have thought it expedient to pursue, and to learn how far the experience of other (and elder) members of the profession approves their procedure. It is with this view that I venture to bring before the Society a case in which I thought it prudent to deviate somewhat from the ordinary rules of practice, and to state what I conceive to be the advantages of the plan adopted.

The patient, who is waiting in the ante-room, is a widow, of 58 years of age, in very infirm health, and of highly nervous temperament. While passing along the street in May last, a mischievous boy threw a piece of clay at her and struck her with it in the right eye. Severe pain in the eye came on immediately, and continued without intermission until I saw her on the following day. She was then in great agony—could not bear the light, and complained that the pain extended from the eye to the forehead, temple, side of the head, and cheek. On examining the eye, I found two-thirds of the anterior chamber occupied by the dislocated lens, which was lying at the lower and outer part, and had thrust back the corresponding part of the iris and ciliary processes. The tension of the eye-ball was much increased ($\frac{1}{3}$), the pupil widely dilated, and the sclerotic highly congested.

¹ The Medical Society of London.

It was obvious from the condition of the pupil (which had not been dilated by atropine), and from the thrusting back of the iris by the lower edge of the lens, that (in all probability) not only was the lens itself dislocated, but a considerable portion of the vitreous was thrust forward with it. The lens was pressing firmly upon the ciliary processes, and acting as a foreign body. The whole intraocular circulation was disturbed; acute glaucoma was induced. Under these circumstances, it was of course improper to leave the dislocated lens in the anterior chamber; and as it was unlikely that the use of atropine would effect reduction, it became imperative to remove the lens, which was as much a foreign body as if it had been introduced from without. What process of extraction, then, was most desirable? Previous experience of operations for dislocation of the lens had taught me that, by attempting its removal by the *scoop* operation, we run a great risk of breaking it up into fragments, and having to remove it piecemeal, at the same time running considerable risk of leaving a large portion behind either in the anterior chamber or in the vitreous. Many subsequent disturbances would inevitably follow such an imperfect operation.

With the *flap* operation there is a great danger of the vitreous (already much disturbed) presenting in the wound, and of the lens sinking back into the vitreous space, and so getting beyond reach.

In any *corneal* incision it is almost impossible to make it effectually without wounding the lens-capsule and the superficial layers of the lens itself, and hence the subsequent difficulties in attempting its extraction entire, and the danger of subsequent complications.

For these reasons, then, I determined (on May 5th) upon making my incision at that part of the sclerotic on which the edge of the lens was evidently resting, and I anticipated that, by making a free opening at this part, the lens would at once escape without the necessity of introducing a scoop and without wounding the capsule. I therefore divided the conjunctiva freely over the ciliary region between the external and inferior recti muscles, to the extent of about a quarter of the circumference of the globe, and then divided the sclerotic cautiously from without inwards with Graefe's cataract knife. By this form of pro-

ceeding I avoided any injury of the lens, and, as soon as it presented in the wound, lifted it away easily by the scoop. The vitreous, however, followed and was cut away close to the incision. The iris also prolapsed into the wound and was freely excised. The edges of the wound then fell together and remained in very good position. A pad and bandage were then applied, and an opiate given. The pain following this operation was not so severe as that from which the patient was suffering before, but for some days she had a great amount of pain, and required frequent repetition of opiates. Her general health, which at the time of the accident had been very enfeebled, remained very bad for months after this; and she was, therefore, sent to Walton-on-Thames, to the Convalescent Institution. On her return she still had much photophobia, and this has been a troublesome symptom ever since.

Sept. 28th, 1871.—The sight of the injured eye has improved steadily, and, with the aid of a biconvex lens of three inches' focal length, she can distinguish large letters at a distance. With a lens of two and three-quarter inches' focal length, she can read type of No. 14 of Jäger's text-types.

On ophthalmoscopic examination the optic nerve is found to be of a pearly white colour, as if somewhat atrophied; and traces of choroiditis are seen in the neighbourhood of the nerve.

I mentioned before that my previous experience of scoop operations in such cases as the above had made an unfavourable impression on my mind.

As an instance in July 1868, a man, of about 50 years of age came to me, who had been struck in the right eye by a stone thrown at him a fortnight before I saw him. The lens was dislocated into the anterior chamber, and was partly opaque. The man was suffering great pain, the eye-ball was greatly congested, and the tension was increased. In this case I attempted the removal of the lens by the scoop operation through a corneal wound, and succeeded in getting it away piecemeal. Some vitreous humour and the iris which presented were also removed. The result, however, was that though the pain was relieved for a time, acute ophthalmitis subsequently supervened, the eye became atrophied and sightless, and when last seen (two months

after the operation) the uninjured eye exhibited threatening symptoms of sympathetic irritation.

Bearing in mind the difficulties experienced in the performance of the scoop extraction in this case, the very unfavourable result of the operation, and having also a distinct recollection of several cases in which by a violent blow the lens had been thrust out of the eye-ball through a rent in the ciliary region of the sclerotic, *without* ultimate loss of vision, I decided that this region was the right one for the incisions in the removal of the lens.

In order to guard against the possibility of cyclitis supervening in consequence of the ciliary processes being involved in the wound and becoming prolapsed, my incisions were carried from behind obliquely forwards, so that the internal line of incision was very much closer to the corneal margin than the external; and after the removal of the lens I very freely excised the prolapsed iris, and I think also a portion of the ciliary processes themselves.

The result of a very free excision of the iris is generally to cause a shrinking and atrophy of the ciliary processes and choroid in the immediate neighbourhood, and this occurring will remove the ciliary nerves from the region involved by the incisions.

On a review of the case first cited, I cannot but think that the result justifies the course adopted, and that considering the serious nature of the injury, and the generally unfavourable issue of such cases when treated by other methods, that the amount of vision preserved is as much as could be reasonably expected.

PODOPHYLLUM.

BY CHARLES D. F. PHILLIPS, M.D.

THOUGH generally referred to the Ranunculaceæ, the *Podophyllum peltatum* is a plant in many respects so abnormal that it has been regarded by some botanists as the type of a distinct order, which they call *Podophyllaceæ*.

Like many other plants of the order to which it belongs, podophyllum, when applied to any part of the mucous membrane, shows itself to be a powerful irritant, sometimes acting even as a strong escharotic. The officinal portion is the root or rhizome, which is removed from the ground soon after the fruit is ripe, and yields a bitter and acrid resin called "podophyllin." This resin is more frequently employed than the root itself, and has been found so useful in liver complaints that in America it bears the name of "Vegetable calomel." By the aborigines of that country, podophyllum has been esteemed from time immemorial as a vermifuge. At the present day it is used in various doses as a drastic, cathartic, emetic, hydragogue, cholagogue, sialogue, and diuretic. In doses of from 2 to 4 grains, it produces vomiting, griping, watery and bloody stools; in less powerful doses, it may be safely administered as a purgative or laxative. As a laxative, however, it is slow in its operations, and the effects are often produced more freely upon the second day after administration than upon the first; while after the laxative effects have ceased, there are often disagreeable symptoms for a day or two, such as pain and griping. As a rule, podophyllum should be exhibited *alone*, but sometimes it is necessary to combine this resin with extract of hyoscyamus in order to prevent griping. Berberine is stated to exist in the root of the podophyllum.

In the following brief remarks, however, I shall enumerate

some of the less commonly known therapeutic effects of podophyllin, which, I think, deserve much more attention than they have received. The neglect of them, in fact, is curiously illustrative of English medical tendencies. In this country, the moment a new remedy is proposed, we fix our attention on its most conspicuous physiological action, and push that effect to an extreme in our therapeutic experiments; the result of which is frequently a popular reaction against the remedy, produced by disappointment as to the benefits obtained. Meanwhile, the really most valuable properties of the remedy may have been altogether missed; and this certainly was the case at first with podophyllin—at least, as regards its reception by the profession in this country. Elsewhere the drug had attracted and received a more extensive examination; and, in some instances, the opposite fault has been committed, of ascribing to it effects which it could not produce.

The beneficial effect of podophyllin has been highly spoken of in arresting or shortening the duration of *fevers*. I am convinced that it possesses no such power, although it diminishes many of the violent symptoms. Circumstances may arise in the course of typhus fever demanding the employment of a gentle laxative, as for instance in the early stage of the disorder, when there is a tendency of blood to the head, with headache, delirium, and biliary derangement, accompanied by constipation, or at any stage whatever of the disorder when there is much sleeplessness accompanied by constipation. Under these circumstances, podophyllin given in a few doses of $\frac{1}{4}$ th to $\frac{1}{8}$ th of a grain every six or twelve hours, will relieve the symptoms experienced in the head, and, whatever may be the *modus operandi*, will induce a gentle aperient action, causing yellow bilious and watery stools. Meanwhile the patient is freed from various distressing symptoms, and in many cases the temperature of the body is lowered one or two degrees. Of course the exhibition of the medicine is to be persevered in only until mild laxative effects are induced. Given in grain or half-grain doses, podophyllin often exerts a powerful and very irritating effect upon the intestinal mucous membrane; it should consequently be employed in fever with the utmost caution, and in smaller doses than usual, lest inflammation should ensue. I am not advocating the use of purgatives

or even of laxatives in fevers generally, as I am satisfied that they are often the cause of mischief in the bowels, of tympanitis, and other troublesome conditions. It is in cases such as frequently occur where a mild aperient is required, that podophyllin, given in small doses, will usually prove the best remedy that can be selected.

The vomiting and diarrhœa which occur in gastro-enteric inflammation are often arrested, and with rapidity, by the exhibition of a few doses of the $\frac{1}{6}$ th to the $\frac{1}{12}$ th of a grain every four or six hours. In the remittent fevers of children, where there is much heat of skin, headache with delirium, a quick and full pulse; dry, brown, and furred tongue; nausea, or vomiting of bilious matter; pain or uneasiness in the stomach; sleeplessness with a general sense of weariness, and a grinding of the teeth during sleep, podophyllin taken in doses of $\frac{1}{16}$ th of a grain every four hours, will frequently cut short those various symptoms in a very remarkable manner. The effect is much improved by the exhibition of occasional doses of aconite.

When the stools of young children and infants have been white or clay-coloured, podophyllin has frequently brought the bile into their motions by administrations in doses of $\frac{1}{16}$ th to $\frac{1}{8}$ th of a grain every six hours, persevering in the use of it for a short period. In these cases it also regulates the bowels.

Prolapsus of the rectum in children may also sometimes be removed by administration of similar doses of podophyllin every night and morning.

In dyspepsia and in hepatic derangements, characterised by loss of appetite, acid regurgitation, putrid taste in the mouth, flatulence, and a tendency to constipation or to diarrhœa, $\frac{1}{16}$ th of a grain of podophyllin, exhibited night and morning, will often induce the best results.

I have often found it particularly useful also in chronic vomiting after meals; also in obstinate heartburn referable to liver derangement. In acute and chronic diseases of the liver, as already adverted to, podophyllin will again be found of considerable use.

In the course of my practice I have met with several hypochondriacs, apparently in good health, with large appetites, and capable of undergoing any reasonable amount of exertion, but

who have suffered for weeks together from an almost total want of sleep. These patients have often been cured by the $\frac{1}{6}$ th of a grain of podophyllin, taken every six or twelve hours for a few days. Such cases are extremely troublesome and difficult to deal with; we must not therefore rely too confidently upon podophyllin for their alleviation. I merely assert that it has proved valuable in specific instances, but sometimes it must fail to produce the desired effect.

Podophyllin is useful also in nervous and bilious headaches, accompanied by constipation. Cases of obstinate and habitual constipation, unattended by headache, are likewise frequently relieved, and the constipation is even totally overcome, by the $\frac{1}{6}$ th to the $\frac{1}{12}$ th of a grain of podophyllin taken night and morning.

ON THE ABSORPTION OF GREY OINTMENT AND OF CORROSIVE SUBLIMATE THROUGH THE UNBROKEN SKIN : A MICROSCOPICO-CHEMICAL RESEARCH.

BY DR. NEUMANN.¹

THE opinions of the various authors respecting the absorption of mercury through the unbroken skin differ much from each other ; we shall therefore discuss our own labours, seeking to find an answer to the following five questions :—

1. Does mercury, in the inunction of grey ointment on the unwounded skin, pass through the latter into the organism ?

2. Which are the channels through which the mercury enters the system ?

3. Can the proposition, that mercury in metallic form passes from the skin into the organism, and circulates in the blood, be verified by the microscope ?

4. Can mercury, introduced by inunction, generally be detected chemically or microscopically in the internal organs ?

5. Is corrosive sublimate, dissolved in baths, absorbed through the unbroken skin ?

It is necessary to remark, in the first place, that the known physical peculiarities of mercurial globules, in grey ointment, can only be recognised within certain limits, beyond which even a skilled microscopist cannot distinguish between them and air-bubbles, molecular fat, molecular detritus, micrococcus, and carbonate of lime. This being premised, the result of many laborious researches is submitted. The question respecting absorption by the skin can only be decided by the combined

¹ The great interest of this subject just now induces us to translate Dr. Neumann's article (*Wiener Med. Zeitung*) almost entire.—ED. PRACT.

methods, on the one hand of verifying the entry of globules into the skin, on the other hand of recognising mercury in the blood and tissues by chemical means. For the latter purpose I employed the method of Prof. Schneider, which will detect the smallest quantities of mercury, and consists

I experimented on dogs, cats, guinea-pigs, rabbits, frogs, on the skin of newly still-born infants, and on living men; also on parts of the body that were destined to amputation; finally on the bladder and the pericardium.

With animals, in order to prevent them from licking away the application, bandages of various kinds were employed (rollers, strips of adhesive plaster); also injection of curara, or solution of chloral hydrate, was performed, after several hours' inunction, after which the animal still lived for twenty-four hours, and four hours, respectively.

Test leaves of gold were inserted into the subcutaneous connective tissue and into the thoracic and abdominal cavities, to become amalgamated by the mercury.

The opinion that mercury is *inhaled* during inunction is contradicted by the fact that high temperatures are required for its vaporization; but in order to prevent all doubt whether fine particles of mercury might not enter the mouth, the author passed the head and anterior part of the animal through a fitting opening in the window of the room where the inunction was done, and thus kept him entirely free from the possibility of inhaling the metal. With the same precautions baths of corrosive sublimate were applied for several hours to the trunk of the animal's body: the presence of mercury in the internal organs was then indisputably verified.

From his experimental researches the author came to the conclusion that in inunction of grey ointment on an unbroken skin, mercurial globules pass into the hair-sheath, then into the bulb, and into the superficially-opening sebaceous glands (less into those that open into the hair-sheath), and into the upper part of the sweat-glands. In what way and in what form they get thence into the circulation, he could not discover: probably they were changed to bichloride and dissolved by the superficial glandular system.

But in the blood and internal organs, mercury which has been

introduced by inunction or by sublimate baths can only be detected by chemical means. Mercury could not be detected, by chemical means, in the subcutaneous tissue.

Mercury does not penetrate through the horny epidermis.

[This research is exceedingly interesting, as bearing on the topics discussed in connection with the Melksham accidental poisoning. It most completely refutes the unjust and injurious insinuation that the mercurial poisoning which took place was owing to the great strength of the solution employed by Dr. Meeres; for it is certain that the solution employed by Dr. Neumann was not strong enough to be corrosive at all: yet the absorption of mercury was distinctly proved.—ED. PRACT.]

THE DUTIES OF HOSPITAL AUTHORITIES RESPECT- ING THE COLD-WATER TREATMENT OF PYREXIAL DISEASES.

EDITORIAL NOTE.

THERE is an important duty incumbent, just now, upon the medical officers and the lay committees of our hospitals. The successful experiments of Dr. Wilson Fox on the treatment of hyperpyrexia by cold baths, which are noticed in our *Review* columns, merely bring to a climax the necessity which has been getting constantly more evident for a long time past, of introducing this mode of medication on the large scale in our London hospitals. It is really impossible much longer to ignore all that is being done, in this way, in Germany and Switzerland, and on a smaller scale by Dr. H. Weber in London, especially since University College Hospital has taken the initiative in so marked a manner. It therefore seems proper to ask the staffs of our hospitals to consider and carefully mature a plan for trying this treatment *thoroughly*. For we are most anxious that it shall not be tried in a partial or in a random way; but that the proper machinery for it shall be provided, and then that the treatment shall be boldly and extensively employed.

As regards the material machinery, the expense need not be great in a general hospital. It would amount to the cost of something like two baths (plunge, on wheels) to each ward in which acute cases are to be treated at all. No doubt the best plan would be for each London hospital to set aside one contagious and one non-contagious ward for the first experiments; and if the results were anything like as encouraging as there is every reason to think we should find them, the system might then be carried out more fully. But it must not be supposed that the cost of baths is the only, or the chief, difficulty in the

experiment. We want it to be clearly understood that the system is one which requires a high standard of nursing, and probably an increase in the number of nurses employed by almost any existing London hospital. The nurses must be of such intelligence that they can be thoroughly trained to the work of thermometry, and must be able to appreciate the signs that make it necessary to examine and see if the temperature has not risen to that height at which it must be immediately reduced by a fresh cold bath. In hospitals where there are a number of students, of a high class, holding the clinical appointments, there would be comparatively little difficulty in getting the nurses kept up to their duty : and one sees very plainly, in reading the details of Dr. Wilson Fox's cases, that the happy issue was largely due to the excellence of this element at University College Hospital. Where there are fewer, or no students, it would be needful for the visiting physicians to devote much time and trouble to instructing the nurses how to carry out their part of the matter, and, very likely, to press on the hospital authorities the necessity of increased nursing help. It is as well to look all these matters in the face at the outset ; but there are very important counter-balancing facts. In the first place, there is reason to believe that the mortality from several acute diseases might be considerably reduced. And secondly we believe, with much confidence, that the judicious union of the cold-water treatment with certain other measures, would allow of a large reduction in the otherwise necessarily large expenditure of our hospitals upon stimulants. At least we have seen with our own eyes the very same kind of symptoms, for which wine is otherwise by far the best remedy, reduced or removed with equal facility by the cold bath. We do not say that the cold-water treatment will ever abolish alcohol in the treatment of acute disease ; but we suspect that it might, to some considerable extent, supersede the necessity for the employment of wine and brandy in pyrexial conditions.

We most sincerely hope that there will be no further unreasonable doubt and hesitation about this matter, but that all the hospital physicians of London will take up this question with the determination to place it on a thoroughly satisfactory basis.

Reviews.

Restorative Medicine. An Annual Harveian Oration, delivered at the Royal College of Physicians, 1871. By THOMAS KING CHAMBERS, M.D., F.R.S. With two Sequels. Philadelphia : Lea.

It is somewhat puzzling to know how to deal with this book. Dr. Chambers has given abundant evidence, in former works, of qualities that demand the admiration and gratitude of all who believe in the progressive character of the science and art of medicine, and especially of those who interest themselves in modern therapeutics. His works on "The Renewal of Life," and on the "Indigestions," though provoking much hostile criticism, were freely admitted by the profession to contain a great deal of valuable and suggestive thought and observation, though this was mixed with a good deal of what is called, in the critical slang of the day, mere "viewiness." On the whole, it was generally agreed that, although Dr. Chambers might not be a perfectly infallible guide for the new generation of students and practitioners, at least he was valuable as a pioneer, and that the original cast of his speculations would do much to break down the old superstitions which still hamper our progress.

We cannot honestly say that the work which lies before us indicates that Dr. Chambers is improving his clearness of conception of the great problems which he has attempted to solve. The Restorative doctrine was always lacking in definiteness and precision, as well as in cogency of proof; and it is now seen to be full as shadowy as in the first rough sketch of it that the author gave to the world some ten years ago. And we think that, in regard to terseness and elegance of style, the author has greatly degenerated; a circumstance which is much to be regretted, because Dr. Chambers's writings formerly gave a great deal of pleasure by the evidences of culture and refinement which they afforded; but the present essay is by no means up to the mark of his earlier productions in this respect.

To speak first of the more serious matters, we cannot at all admit the validity of a good many of the facts and arguments which Dr. Chambers adduces. He makes some good, though not novel, points in the way of purely destructive argument; and it may be that in overthrowing the remnants, still far too perceptible, of those systems of pathology and therapeutics which assumed disease to be an entity separate from the body, he may still prove useful. But when he attempts construction, either in pathology or therapeutics, he seems to us to stumble sadly. He does comparatively well as long as he is talking of such matters as the action of cod-liver oil and other drugs that may be fairly described as direct nutrients. But it is far otherwise when he comes to speak of the iodides and bromides, which he classes as "alteratives." It is a pretty considerable assumption, to start with, that the action of these two groups of remedies is the same. The assumption is made, however, and the author then proceeds to remark that it is difficult to explain the fact that syphilis, ague, neuralgia, hysteria, acute hydrocephalus, and epilepsy, each of them yields cases that are found amenable to "this class of drugs." He observes that it is difficult to explain the connection between this large and seemingly incongruous group of diseases; nevertheless he does venture an explanation, viz., that in all these cases the disease attacks the white fibrous tissues which sheath the nerves and the bones. Now this is a mere guess and a very random one; but the weakness of the speculation is nothing to the looseness and incorrectness of the facts on which Dr. Chambers builds it. The following, for example, are among the chief of these observations:—1. Iodide of potassium, we are told, though marvellously effective in syphilitic periostitis, has scarcely a perceptible trace of action on chancre *or on sore-throat*. 2. Bromide of potassium, we are informed, is pretty certainly efficacious in arresting fits which are dependent on injuries or jars to the pericranium, but hardly at all efficacious in stopping those that depend on hereditary or congenital influences. 3. Acute hydrocephalus is marvellously benefited by iodide of potassium, when the disease is seated in the membranes of the brain, but it is entirely unaffected by the remedy, when the morbid process is seated in the brain-substance. To every one of these propositions we unhesitatingly demur. That iodide of potassium scarcely exerts any perceptible influence on syphilitic sore-throat, is a statement so perverse as to suggest that Dr. Chambers could never have had much experience in the hospital out-patients' room. That bromide of potassium is useful only, or even chiefly, in cases of epilepsy from superficial brain-mischief, is perfectly contrary to our own experience, and we venture confidently to believe it is also contrary to that of most physicians who see much of convulsive disease. And as regards acute

hydrocephalus, which the best authorities now universally regard as a tubercular disease, we have yet to learn that iodide of potassium, or any other treatment, has ever been proved to exert the slightest influence on this disease, which appears to be uniformly and inevitably fatal. These are serious errors of observation; and it is certainly not by this kind of statement that Dr. Chambers will convince the profession that cases of ague and hysteria resemble each other in being both produced by failing nutrition of the white fibrous tissue of the sheaths of nerves.

We have mentioned these errors of fact, in the first place, for there is no such serious mistake that the medical philosopher can commit, as that of erroneous primary inductions. But these are not quite the only faults that distinguish Dr. Chambers's oration. We are no puritans as to style; but there are, after all, one or two reservations which even the most liberal of critics must make, before they accord indulgence to innovators in scientific exposition. There is no objection to the use of picturesque language, provided, always, that the picturesqueness be carefully made to subserve the purpose of increased clearness and force of scientific expression, and that the decorative elements of the style in themselves are thoroughly good in an artistic point of view. Dr. Chambers here frequently violates both these rules: and the faults that were but occasional, though marked, defects in his earlier writings, become essential characteristics in his present essay. The picturesqueness looks too much like mere stage business, and the bursts of eloquence and pathos are not happy. We experienced very singular emotions in reading Dr. Chambers's peroration, in which he lauds the self-sacrificing devotion which induces so many doctors to work on till the end of their lives, and illustrates the matter by reference to his own history. He tells us of a critical time in his life, when he had been laid aside by illness; how strongly he felt tempted to decline all further scientific labours, and how at last the better nature within him triumphed, and he returned to work instead of ending his days as an idler under Italian skies. It is evident that the mental struggle was a sharp one, and we were really somewhat shocked to hear that Dr. Chambers's temptation resembled the desire to "sport with Amaryllis in the shade, or with the tangles of Neæra's hair:" an unholy impulse, which was only calmed by repeated visits to the spot where the skeleton of that tiresome Pompeian sentinel was found, who was killed in the eruption of Vesuvius, &c. (as we maintain because he was too drunk or too silly to run away). What if Dr. Chambers had yielded! The thing sounds well enough in "*Lycidas*;" but imagination shrinks appalled at the vision of a respectable and mature physician crowned with roses, and reclining beneath an arbutus; a goblet of Falernian at his elbow, and Amaryllis

and Neera sporting (and occasionally tearing each other's eyes) in the middle distance.

Joking apart, we cannot but regret that Dr. Chambers should have done so little justice to himself in this essay, delivered in so conspicuous a place, and on such an important occasion. We are at loss to understand how he, of all men, came to write so dull a book, and still more surprised that he should send it out to the world with an even feebler "tag" to it, in the shape of the two "sequels." That Dr. Chambers, who, we all know, can be sparkling and original when he pleases, should have contented himself with a tame imitation of "*Friends in Council*," is very odd. We had a weakness for his former literary manner, which was brilliant and felicitous, and often most suggestive in its way of setting important though little noticed matters in a clear and sudden light which showed their true value. We decline to believe that this Harveian utterance is his true "form," and we respectfully request him to discard the fashion of it before it settles into a fixed mannerism which would spoil our hopes of deriving future amusement and instruction from his pen.

The Principles and Practice of Physic. By Sir THOMAS WATSON, Bart., M.D., F.R.S., &c. Fifth Edition. 2 vols. Longmans.

THE appearance of a new edition of what was, justly, the most famous medical work produced in England during the second quarter of the present century, is an event calculated to excite much interest. The author is still among us, a man of whom there is no impropriety in saying that he occupies an unequalled position, not merely in the respect and admiration, but in the affectionate regard, of the whole profession. There is not one of us that does not feel a jealous interest in the reputation of a book to which we all owe debts that we can never repay. It is not merely that Sir Thomas Watson drew for us a series of pictures of disease which, for vigorous description, have never been excelled and rarely equalled; nor that the language in which he conveyed these lessons was as pure and limpid as that of Goldsmith. These were great merits, but there was something more than these, which gave an inexpressible tone of superiority to "*The Principles and Practice of Physic*." There was something, in fact, that spoke, in every line, of that high-minded modesty to which exaggeration of all kinds appears a fault to be shunned as scrupulously as falsehood itself. In fact the work was not merely a storehouse of invaluable facts, but a complete school of scientific and professional manners.

For all these reasons, "*The Principles and Practice of Physic*" of our youth was a thing quite unique; and it gathered about it

such a sentiment of universal admiration and liking as can rarely, if ever, have attached to a medical work before. But, like many another masterpiece in literature and in art, it has been found to bear very ill the process of retouching; and by the time that the third edition appeared there were already not a few, among those best qualified to judge, who deemed that on the whole it might have been well simply to have reprinted the original lectures without any attempt to adapt them to the changed state of medical science. We confess that this is still more decidedly the impression left on our minds by the perusal of the fifth edition. We are not ungrateful for the noble effort which Sir Thomas Watson has made, at a very advanced age; for we are convinced that, even with the able assistance of Dr. George Johnson, he must have found the labour of such a work exceedingly trying. But the truth is that even the best of re-editing could never have brought the book up to the standard of existing medical knowledge, unless, indeed, the whole framework of the lectures had been pulled to pieces; and this neither author nor assistant-editor have felt the courage, or rather the recklessness, to carry out. We cannot wonder at this; nevertheless, the inevitable consequence has been that the work, as it stands, is imperfect, and of very different excellence in different parts. We must not make such a statement without giving examples, and shall select the following points. We find no word about chronic alcoholic poisoning, except the somewhat extreme, and in our opinion incorrect statement, that 99 out of every 100 cases of cirrhosis of the liver are caused by drink: the whole of the extensive series of *nervous* maladies, provoked by chronic excess, are ignored, and delirium tremens itself is dealt with in what must be pronounced an unsatisfactory manner. So, again, with regard to pleurisy; the exceedingly important question, whether paracentesis ought to be more extensively employed at an early stage, is discussed, and a somewhat decided opinion in the negative is pronounced; and yet the name of Bowditch (who has done more to settle the question than all other authors together) is not mentioned, nor is the fact recognised that it is now perfectly easy to tap with (practically) no admission of air. Let the reader turn, again, to the subject of paraplegia, which is dealt with in eleven pages; it will at once be evident that the discussion is most incomplete: it is a curious evidence of this, that although the subject of reflex paralysis is broached, and the exceedingly important views of Gull, as to the transmission of peripheral irritation through continuous structures to the cord, are mentioned and approved, there is no direct reference, on this point, to Brown-Séquard, and many other authors who have, during twenty years, made this question a battle-ground which has

yielded most important results to nervous pathology, are similarly passed by. Yet the question of a *neuritis migrans* is really one of the most pressing of the day.

On the other hand, there are plenty of instances, in these volumes, of a most painstaking and liberal appreciation of the views of recent writers, such as we should naturally expect from the author's well-known candour: whence we feel bound to conclude that much of the incompleteness with which certain subjects have been treated is due to the (so common) breakdown of the machinery of divided editorship. The best two writers in the world would never make so good a joint performance as either of them could do singly. As examples of the better class of articles, we may direct attention to the following. The lectures on Hemiplegia and Aphasia contain a really full account of the modern theories and facts of Hughlings Jackson, Broca, Broadbent, Moxon, and others; and, as might be expected, the story of Aphasia is told as only Sir Thomas Watson can tell a clinical story. So, again, the article on Tetanus has been revised, so as to admit the microscopic discoveries of Lockhart Clarke and Dickinson (though we are surprised to see that there is no mention, under "treatment," of calabar bean). The account of Locomotor Ataxy also is revised by modern lights; and various other examples might be cited to show that when the author's attention has been directed to new facts and questions, he shows no signs of failing in his old and really marvellous power of grasping a new subject and presenting it to his readers in pellucid English.

Upon one question which is dealt with in these volumes, there will be much division of opinion; and the balance of feeling will, we believe, incline against the conclusion at which Sir Thomas Watson has arrived. We refer to his adoption of the able speculations of Dr. George Johnson on Asiatic Cholera. We have on various occasions, especially in our review of Mr. Macnamara's work on Cholera, hinted at the principal reasons which compel us reluctantly to reject Dr. Johnson's theory, the simplicity of which would otherwise, of course, greatly commend itself to our minds. This theory is, in fact, bound up with the larger question of the genuineness of the supposed phenomena of *elimination* which occur in a great variety of diseases, and this, again, touches very nearly upon the question of teleological argument *versus* induction proper. Viewed in this aspect, it is a most important matter that the theory of Dr. Johnson should be fully discussed from the point of view of those philosophers who decline to employ arguments from final causes at all in deciding a vexed question of pathology. We therefore hope to be excused if on some future occasion we attempt to appraise the

comparative value of the kind of view, of which Dr. Clifford Allbutt has made himself the prominent exponent, on this question, and those of Dr. George Johnson. It is in fact becoming impossible for those who are interested in the progress of therapeutics any longer to shirk the great questions, as to the principles of research, which are involved in the opposition between the teleological and the purely inductive methods of inquiry. It is the fatal habit of English medical men, beyond all other classes except English lawyers, to consider such subjects dry and repulsive; or it would long ago have been evident to the profession that we *must* all of us come to clear ideas on those points; and that, when once the effort is made, the subject is seen to be as fascinatingly interesting as it was previously thought to be technical and dull.

After all our criticisms of this new edition of Watson (which we most sincerely trust will be ascribed, not to the critic's desire of seeming sharp and clever, but to our jealous reverence for our favourite of favourites among medical works), we cannot but remember, as our last thought on the matter, that, to multitudes of students, this new issue will afford the opportunity of reading Watson for the first time. How unfeignedly we envy those happy youngsters! We promise them that if they have been thinking that medicine is dry, they will find it can be made as pleasant reading as a novel; and if they have suspected that doctors are dull, they will meet here with a master who flashes light, and, one might almost say, gaiety, into the mind of the slowest learner, by the mere contagion of his own eloquent enthusiasm.

On the Treatment of Hyperpyrexia, as illustrated in Acute Articular Rheumatism, by means of the external Application of Cold. By WILSON FOX, M.D., F.R.C.P., Physician Extraordinary to the Queen; Holme Professor of Clinical Medicine in University College Hospital, &c. London and New York: Macmillan & Co.

THIS small treatise, in great part a reprint from the *Lancet*, is one of the most interesting monographs we have ever met with. It unquestionably marks the starting-point of a most important development of therapeutics in this country, for it will be quite impossible for the physicians of other hospitals to delay much longer the adoption of an expedient that has been tried with such brilliant success at University College Hospital; and we think that the thanks of the profession ought to be accorded to Dr. Wilson Fox for the energy and intelligence with which he has carried out the researches here recorded.

For some years past it has been recognised (we need not go over the history of the discovery) that various acute diseases—rheumatism more especially—occasionally terminate fatally in a very peculiar manner; namely, by the sudden and persistent rise of temperature which goes on till an extremely high point is reached, when the patient inevitably succumbs—his nervous forces evidently stifled by the poisonous heat of the blood. Different observers varied somewhat in their estimate of the minimum temperature which, being reached, death must ensue: but all agreed there were no recoveries when the heat rose to 110° Fahr. Dr. Wilson Fox believes that even a lower temperature, unless it be quite momentary, is of decidedly fatal augury. That is to say, the patient would certainly perish quickly unless the treatment which he has now successfully employed be immediately and steadily put in force. That treatment is the repeated immersion of the body in the cold bath; the process being renewed as often as the temperature rises to a certain point.

The readers of the *Practitioner* know how often and how urgently we have reproached the hospitals of our great cities for not having long since inaugurated a revival of that cold-water treatment of pyrexial diseases which (to the lasting disgrace of this country) it has been left for the Germans and Swiss to work out scientifically, although the whole merit of the original idea was due to our own Currie, whose most important observations were allowed, by the regular profession, to fall into oblivion. We spoke of what we had seen with our own eyes of the working of the system, in the case of typhoid fever especially, at Basle, under Liebermeister. It is a great gratification to us, therefore, to find the reform we asked for inaugurated by a brilliant success, not in the simplest, but in the most difficult and apparently hopeless class of pyrexial cases. Dr. Fox has saved the lives of two patients who would have been indubitably doomed to death under any other known treatment; and he appends the history of a third case in which the treatment, though not commenced until the temperature had already reached a fatal height, produced a most remarkable, though temporary, effect. In this last case a large *bleeding* had been tried, and Dr. Fox believes that this, so far from proving at all useful, had aggravated the tendency to hyperpyrexia.

We shall not spoil the pleasure our readers will derive from the perusal of this excellent piece of clinical research, by analysing it here. What we think of its general import, and of the duties it imposes on the profession at large, will be seen in an Editorial Note, which we publish elsewhere.

Essay on Growths in the Larynx: with Reports, and an Analysis of 100 consecutive Cases treated by the Author, and a Tabular Statement of all published Cases treated by other Practitioners since the Invention of the Laryngoscope. By MORELL MACKENZIE, M.D. Lond., &c. London: Churchill. 8vo. pp. 263.

THE mere reading of the above title, and the author's name, will prepare the profession to expect a very valuable work. Dr. Mackenzie has, from the first moment of the introduction of the laryngoscope in this country, occupied a leading position in all that concerns its use. We do not profess to be able to give a perfectly critical judgment on the value of Dr. Mackenzie's cases, but so far as we can see, the book is a storehouse of sound knowledge on the subject it treats; and there is one feature of it which, at any rate, is creditable. We refer to the pains the author has taken to identify each individual patient so that his case may be recognised by independent observers who had seen it; and also to the large amount of trouble which he has taken to collect together the published cases of all other authors.

The laryngoscope and its revelations have brought about a very great aggravation of the serious difficulty which has been increasingly felt in the profession, for some years past, as to General *versus* Special kinds of medical practice. It has been felt that there is something unnatural in the diseases of one little organ, like the larynx, being allowed to assume such rank and importance as to absorb the entire attention of particular persons; the general profession resigning the hope of obtaining really competent skill in such matters; and with this view we, in theory, entirely sympathise. Moreover, we think that all but the best and fairest minded of men who devote themselves to such a narrow speciality will be in danger of becoming warped in their views. Be it said, however, that the general profession has only itself to thank for any abnormality in the existing state of affairs. It is the astounding stolidity and indifference of the mass of the profession to improvements like the laryngoscope, and many other analogous things, which inevitably tends to generate a special class of men who really know their work, and can give a sound diagnosis on a given case, which the man who merely goes on "general principles" would be as likely as not to mistake.

Archives of Ophthalmology. Edited and published simultaneously in English and in German, by Professor H. KNAPP, M.D., in New York, and Professor S. MOOS, M.D., in Heidelberg. (Three half-yearly volumes, for 1870 and first half of 1871.)

WE very much regret that by some accident we had overlooked the existence of this excellent and much needed journal. We

have no space, now, to repair our injustice by a review of the many important articles which the first volumes of these "Archives" contain; but we hope for the future frequently to inform our readers of the more important matters which appear in it from time to time.

Clinic of the Month.

Treatment of Tetanus.—Mr. P. O. H. Brady, of Watford, reports a case of successful treatment of this disease, which occurred in a farm labourer of 50 years of age, owing to the thumb of the left hand being lacerated by a falling plank. The patient applied poultices himself, and appeared to be going on satisfactorily for nearly two months, when, on trying to continue his work, he felt “a curious sensation all along his spine.” After some days lockjaw set in, and Mr. Brady was sent for. The man was in bed, propped up and leaning forward, with symptoms of emprosthotonos: the jaws were firmly locked; the muscles of the face, throat, and neck rigid and contracted; pulse small, quick, and very irregular; skin dry, rigors frequent, with cold extremities; great tenderness along the spinal cord, more particularly over the cervical vertebræ. Having previously seen various cases treated with opium, belladonna, and other narcotics without any good result,—every case terminating in death,—Mr. Brady considered that line of treatment waste of time; but having noticed the power of bromide of ammonia over nervous affections implicating the spine, he determined to try it in large doses. The patient having lost the greater number of his side teeth, liquids were introduced, though deglutition was extremely difficult. The following mixture was ordered:—Bromide of ammonia half a drachm, spirits of chloroform one drachm, camphor mixture an ounce and a half, every four hours. After twenty-four hours, there was just perceptible improvement. The doses of bromide of ammonia and spirits of chloroform were increased one-third more, every four hours, as before. After forty-eight hours the skin began to act powerfully; the sheeting, blankets, and bed were completely saturated. The perspiration being free from the slightest acidity, differed in that respect from the perspiration of rheumatic fever. Still there was no relaxation of jaws or muscles, and he was unable to lie down. The medicine was steadily persevered in, whilst as much nourishment was given as possible. There was, as usual, great obstinacy of the bowels, requiring twenty grains of jalapine with the same quantity of scammony every morning to produce one evacuation. Five grains of calomel were occasionally added. After eight

days the jaws and muscles were slightly relaxed, but he was still unable to lie down; after two weeks the relaxation was complete; he could open his mouth, but had no power of mastication for several days. Galvanism was tried, which produced spasmodic twitchings of the facial muscles, but it did not appear to give much benefit. Extreme prostration remained after the attack was subdued, which was overcome with quinine, port wine, &c., and the patient soon resumed his work. (*Lancet*, September 23, 1871.)

Ox Bile in Cholera and Choleraic Diarrhœa.—An “old pupil of John Abernethy” observes that some author, in describing the symptoms of cholera and its treatment, terminated his statement by saying that cholera (a redundancy of bile) was a wrong term, and that acholia (without bile) was more correct, as it arose from a total suppression of the action of the liver. On reading this, he thought, why not give *fel bovis inspissatum*? that will restore the bile to the system (if of any benefit), and afford time for other remedies. The next case he had he gave it, and it fully realised all his hopes. He had for years previously used it for simple diarrhœa, with nothing else, with great success. He then gives the following statement of the treatment he adopted in one case:—

“*March 26th, 1851.*—Visited D. G. at 11 P.M.; found him in a partial state of collapse from Asiatic cholera, with the usual symptoms of the stage. My opinion was by no means favourable to his recovery, but I prescribed ox-gall in two-grain doses every four hours, with calomel, opium, and stimulants. I considered the *fel bovis* my sheet anchor. I was not disappointed: my patient recovered. This man was a soldier, discharged from disease of the heart; had cholera in India, and was aware of the nature of his attack. He was living a short time since. Since I was told of the acid draught for diarrhœa, I have given acid. sulph. dil. gr. xx, tinct. opii gr. x, aquæ ʒxij, ft. haust. s.s.; and one hour after, *fel bovis inspiss.* gr. ij. This generally succeeds, but occasionally requires three or even four doses of each. So thoroughly am I convinced of the great benefit of the *fel bovis* that nothing should induce me to omit giving it.”

The *fel bovis inspiss.*, he continues, is a most invaluable remedy for very many other disorders, but is little used. But now comes the difficulty. Is it good or bad? The first he procured “was good (very fortunately); the second pot, villanously bad, made a patient (not with cholera or anything of that description) excessively ill; it purged him furiously, to me quite unaccountable; looked at the extract,—not like the first; at once saw it was made of vitiated bile. It was dark green, or possibly it had been kept too long before inspissation, and became decomposed.”

After this he always personally inspected it before purchasing. The colour of the extract should be of a dull golden bronze, or something like golden syrup when it is poured out—not a tinge of green: if there is, it is bad and unfit for use; at least his experience teaches him so, and he will not use it. He tries the colour by spreading a small quantity on white paper. (*Med. Times and Gazette*, Sept. 2, 1871.)

Radical Cure of Retroflexion of the Uterus.—In some clinical observations on this subject, Dr. Beatty of Dublin remarks that it is only during the last few years that practitioners have admitted and been able to recognise the frequent occurrence of retroflexion of the uterus. He gives a review of the methods adopted for its relief or cure by Sir James Simpson and Dr. Moir, and then proceeds to describe the plan he has himself found most effectual. He first rectifies the position and shape of the uterus by means of the sound, and then passes one of Sir James Simpson's uterine stems with the bulb at the bottom into the cavity of the organ. This is not often easily accomplished, for the sharp bend in the uterus is at times so rigid and permanent that the instant the sound is withdrawn, the organ flies back to its false position as if with a spring. The stem once introduced is to remain for at least four or six weeks. But unless it be kept in its place, it will fall out. To prevent that, Dr. Beatty inserts a flat boxwood pessary into the vagina, upon the smooth surface of which the bulb of the stem would rest, and would move freely over its surface; thus enabling the uterus to change its position, as it is accustomed to do, according as the bladder or rectum is filled or emptied, or as the position of the woman is horizontal or perpendicular; while yet the organ is kept quite straight by the stem within. The daily use of a weak astringent wash thrown into the vagina with a syringe would keep the mucous membrane free and healthy, and the woman from the first day might go about without the least inconvenience. At the end of the term specified, Dr. Beatty removes the pessary and stem, by which time the uterus will be found to have grown straight; but as a precaution against any relapse, he proposes the insertion into the vagina of a single ring of gutta-percha made by bending a rod of that material a quarter of an inch in diameter into a circle of the same diameter as that of the box-wood pessary just removed from the vagina. When such a ring is introduced into the vagina, and the woman stands up, it assumes the same position as a flat pessary does—namely, a very oblique one. If the finger be passed into the vagina of a woman in the erect position, whilst she is wearing a flat round pessary, the instrument will not be found lying horizontally, but very much sloped; its anterior margin will be felt low down

behind the pubes, while the posterior rises high in the back of the vagina behind the cervix uteri. The ring, when introduced, assumes the same position; and while the posterior part of its periphery rises up, behind the cervix, and offers resistance to the fundus if disposed to fall back, the cervix is permitted to pass through the wide ring and descend to its proper position in the vagina. The uterus, previously straightened by the uterine stem, is thus kept in its natural form by this simple means. The ring may be removed at the end of six weeks, or may remain longer, for it does not interfere with any of the functions of the vagina. (*British Medical Journal*, Sept. 23, 1871.)

Antiseptic Treatment of Surgical Cases.—A series of ten cases of different kinds of surgical disease, in which the antiseptic treatment was carefully followed out, are reported by Mr. Nankivell, of St. Bartholomew's Hospital, Chatham. In all, the lac plaster was used instead of the more recently devised antiseptic gauze; and failure only resulted in one case, where the injury consisted of a compound fracture of the thigh and knee-joint, the patella being smashed into six pieces, three of which were quite loose, and were removed. In this case suppuration took place in the knee on the fourth day, and on the eighteenth day it had extended both upwards and downwards; and as the patient's health seemed to be declining, the thigh was amputated at the lower third. On the twenty-third day, the dressings were removed from the original wound of the thigh, and a little lymph was seen on its surface. On pressure being made on the back of the thigh, about half a pint of pus ran out. On the thirty-second day, secondary hæmorrhage came on, and amputation was performed through the original fracture, which was found to be healthy. The patient died on the following day. With this exception, the remaining cases, including two of compound fracture of the leg, one of abscess of the abdominal wall, one of enchondroma of the finger, one of fatty tumour in the groin, one of scirrhus tumour in the breast, one of removal of fatty tumour from the deltoid, one of wound of wrist joint, and one of popliteal aneurism, when the artery was tied antiseptically in Scarpa's triangle, all did well; and afford additional evidence, if any were needed, of the value of this mode of treatment. (*Lanct*, vol. ii. 1871, No. 9.)

Uses of Coca.—Dr. J. H. Scrivener, of Lima, states that the two most valuable productions of Bolivia are the Peruvian bark and coca. The leaves of the latter are the produce of a shrub, and, when mature, are gathered and sun-dried. Coca has been in use from time immemorial. Its properties are variable, according to the quantity employed. It is a stimulant, a tonic, slightly narcotic and very nourishing. It possesses an agreeable aroma,

and a flavour similar to that of tea, and, like that plant, is frequently employed in the form of an infusion in slight disorders of the stomach. Its nourishing powers are attested by the fact, that, in the war for the independence of their country, a battalion of infantry under the command of General Valdes marched 108 miles on foot in three days, and without any other food than the coca leaves; and the andadores or couriers, who travel from sixty to seventy miles a day without weariness, and for several successive days, go without any other food than a few coca leaves and a small quantity of powdered Indian corn. The effects of coca on the Indian are very visible; they are strongly marked in his countenance by a greater brilliancy in his eye, more agility in his step, and he is animated and contented. Dr. Scrivener observes that, besides its admirable effects in nourishing the system, it is employed with advantage in a medical point of view, as an excellent tonic in weakness of the stomach and other affections of that organ; and he hopes that the day is not far distant when this plant will become more generally known in medicine. Its leaves might easily be packed in cases lined with tin, like tea, and would then probably preserve most of their qualities. (*Med. Times and Gazette*, Sept. 30, 1871.)

Treatment of Acute Abscess and of Sinuses.—Mr. Maunder, in an abstract of a Clinical Lecture on these subjects, observes that though such cases may be thought of trifling importance, yet since they are of very common occurrence, they are worthy of careful study. He defines an abscess to be a circumscribed inflammatory swelling containing pus; and conceives that its production is due to irritation of a part, occasioning great congestion accompanied by effusion of inflammatory lymph, which after the lapse of a few days is partially absorbed, and partially degenerates into pus. When the abscess is superficial, the pain moderate, and no constitutional disturbance present, the application of a hot poultice will suffice, and this will relieve pain and promote pointing. There are circumstances under which it is not desirable to leave the case to nature, as when there is much constitutional disturbance; when it is situated on the neck or face, especially of the female, whom it is desirable to disfigure as little as possible. In such cases a small incision should be made, and if the abscess be about the cheek, it should be opened within the mouth. If the abscess be situated beneath a deep fascia, it should be opened early, the most dependent part being selected, since fascia are slow to yield to progressive absorption. Sinuses are frequent sequelæ of abscesses, and various methods may be employed in their treatment, such as the careful dressing by means of compress, strapping and bandage, so as to keep the walls of the sinus in contact, and thus prevent the accumulation

of pus, the injection of stimulating lotions, as the nitric acid, carbolic acid, iodine, &c. ; but the radical and most expeditious means of cure is to slit them up on a director, and then to carry the incision at either end of the sinus some half an inch into the sound structures, to form a channel for the ready flow of any future secretion, and to prevent bagging at the extremities. Thus, as in a case he describes of sinuses following an abscess in the groin, with a pair of scissors curved on the flat, the thinned and overhanging integuments of either side may be cut away to a level with the healthy skin. In this way an open and almost level wound is obtained, which soon heals by cicatrisation. The scissors are to be used when the sinuses appear to run close under or in the substance of the skin itself, rather than deeply in the subcutaneous tissue. The roof of the sinuses will in such case be found to be very thin, and when slit up, each half will have a tendency to curl, and so, if left, to form two sinuses instead of the original *one*. Sinuses connected with strumous glands of the neck, may often be cured by this method of treatment. (*Medical Times and Gazette*, Sept. 23, 1871.)

Effects of Bromide of Potassium.—A correspondent of the *British Medical Journal* (Sept. 16, 1871) asks whether any ill effects—and if so, of what character—have been known to follow the long-continued use of bromide of potassium. Dr. W. A. Hammond, in reply, states that having given it in thirty-grain doses three times a day, in the case of a patient suffering from paralysis agitans, he observed the temporary production of melancholy, with delusions, contraction of pupils, drowsiness and failure of memory. Dr. Noble states that having given it to a lady, aged 54, in half-drachm doses night and morning, for epileptic attacks, occurring once or twice a week, she was at first improved, slept better, and had no seizure. Then having taken the medicine for three weeks, she was directed to continue it for two or three weeks longer. The effects were that, although she had had no more epilepsy, she had a sad and sunken expression of countenance, an unsteadiness of gait, a general atony—a sort of ataxia—of the whole muscular system, as if a general shaking palsy were imminent. Dr. Noble entertained, no doubt, that these effects were due to the toxic effects of the bromide. The intermission of medicine and administration of a simple stomachic, soon led to the disappearance of the above-mentioned symptoms and to subsequent recovery. Dr. Needham, of York, has used it largely in the treatment of insanity ; and although, in occasional instances, temporary depression, loss of weight, and slight furunculoid eruptions have followed its use, its general effects have been most satisfactory. In two cases, however,—the one of mania, the other of acute melancholia,—scruple doses given three

times a day produced, within a week, extreme depression, rapid wasting, impairment of muscular power, dilatation of pupil, hesitation of speech, and great taciturnity, with loss of mental power, amounting almost to paralysis of thought, a condition presenting the strongest resemblance to that which accompanies brain exhaustion by whatever causes produced. In both these cases, suspension of the bromide was rapidly followed by the disappearance of its ill effects. Dr. Provis, of Wilton, gave an epileptic lady 15 grains, and subsequently increasing doses up to 45 grains of the bromide, three times a day. She suffered alternately from depression of spirits, great bodily weakness, and eczematous eruption, drowsiness, extreme fœtor of the breath, and great impairment of the intellect. These symptoms also disappeared on discontinuance of the remedy, but the frequency of the epileptic attacks increased. Dr. Foss, of Stockton-on-Tees, gave steadily increasing doses to an epileptic, till the quantity amounted to a drachm a day; great nervous disturbance then began to display itself, the patient suffered from gastric irritation, pain in the muscles of the legs and thighs, great depression of spirits, sleeplessness, want of appetite, hæmatemesis, and pain after food. On reduction of the dose to half a drachm daily, all the symptoms disappeared, and no return of the epilepsy has occurred during the last fourteen months. (*British Medical Journal*, Sept. 23, 1871.)

Treatment of Ulcer of the Stomach with Animal Charcoal.—Dr. Farrar records a case of a man, aged 26, who suffered from ulcer of the stomach, accompanied by the usual symptoms of heat and pain in the gastric region, loss of appetite, and a distinct hard lump perceptible to the man's own touch. After various treatments Dr. Farrar saw him, but could then detect no tumour in the epigastric region, though it was extremely tender to the touch. Shooting pains also darted through to his back and up to his shoulders. The tongue was dry and parched, and coated with a dirty yellowish white fur; bowels costive; great thirst; skin moist and cool; pulse 110, jerking and wiry; sleep good. His greatest discomfort was the presence in his mouth at night, when in bed, of a fœtid and highly disagreeable fluid, which came from his stomach. He never awoke without finding his mouth filled with this abominable matter, and running out of the angles of the mouth on the pillow. A little of this fluid being collected and examined by Dr. Farrar, was found to be a dirty greenish-yellow fluid emitting a fœtid odour; under the microscope it was found to consist of pus cells, a few blood corpuscles, epithelial scales, &c., suspended in a thin but apparently viscid fluid. Dr. Farrar diagnosed the case to be one of non-malignant ulcer of the stomach. The treatment consisted in

restricting him to milk and beef-tea at the temperature of new milk, mustard poultices at the seat of pain, and perfect rest. This treatment, continued for a week, gave great relief to the burning and throbbing pain in his stomach, but not to the disagreeable rise of foetid matter. No medicine had hitherto been given, but Dr. Farrar now prescribed half-teaspoonful doses of animal charcoal three times a day, to be taken, if possible, mixed with a little cold water, just enough to form it into a bolus, and to be taken half an hour or more before food. On the second night after beginning the charcoal, he expressed himself so greatly relieved that Dr. Farrar at once doubled the dose of the charcoal with the most satisfactory results. The foetid risings altogether ceased, and with the disappearance of this symptom the pain and heat in the stomach began to diminish. The tongue became moist and clean, and the thirst subsided ; in short, he rapidly improved in every particular from a few days after the time the charcoal treatment was adopted. (*Lancet*, Oct. 21, 1871.)

Extracts from British and Foreign Journals.

On Arterial Transfusion of Blood. — Professor Hueter recorded some time ago a case of poisoning with carbonic oxide, in which he preserved the life of the patient by transfusion. More recently, in the *Centralblatt*, he has recommended the same, on the ground of the successful issue of three cases where healthy blood was injected to remove the symptoms accompanying intense septicæmia. Hueter pursued in these cases not the usual plan of injecting venous blood into a vein, but that of injecting the venous blood of a healthy man into the *artery* of the invalid. He performs the operation in the following way. During the defibrination of the blood by beating and filtration through a piece of fine muslin by assistants, he exposes the radial artery or the tibialis posticus, above the malleolus internus, the latter being just as easy to find as the former. Any slight hæmorrhage is carefully arrested, and a very small opening is made in the sheath of the artery, which is separated from the adventitia; a sound is then pushed under the artery, and moved hither and thither, till about two and a half centimetres of the artery are isolated. Four pieces of strong silk are now passed beneath the vessel, of which one forms a reserve ligature. The silk nearest to the heart is now tied tightly, so as to prevent all entrance into the vessel of blood coming from the heart. The injection syringe is now filled, and the lowermost silk slightly pulled, so as to stretch the vessel. An opening is now made in its upper part, by cutting it about half through transversely with scissors. The canula is introduced, and secured by the third thread. The tension hitherto kept up on the lowermost silk is now relaxed, and the injection begun to be forced in. When the injection is completed, the lowermost thread is tightened, and the piece of artery between the two ligatures excised. The wound is simply dressed. The principal difficulties of the operation are its complexity, and the necessity that exists of maintaining a considerable pressure on the piston to overcome the cardiac pressure. On the latter ground Hueter recommends the employment of Mosler's injection-syringe, in which the piston works with a screw. In Hueter's opinion, the objections are far outweighed by the advantages which arterial transfusion

affords. One of these advantages is, that the blood reaches the heart more slowly, and with greater steadiness and regularity, than by venous transfusion. He regards the injection of small quantities (two, three, or four ounces) as useless, in most instances from eight ounces to one pound being requisite. But if so large a quantity be suddenly thrown upon the heart, as occurs in injection by the veins, a fatal arrest of its activity may occur. It must be remembered, also, that in consequence of the bleeding prior to the injection, as much unhealthy blood is removed as good is introduced from the system. Another advantage attendant on the arterial injection is security against the introduction of air, any small quantities that may be introduced being rapidly absorbed during the passage of the blood through the capillaries. By this method, also, all danger of phthisis is avoided, which in many instances, when transfusion of the veins would otherwise have proved successful, has led to the death of the patient. It has not yet been ascertained whether the contact of a large quantity of blood, rendered arterial by whipping with the waste of the right heart, is of any real advantage. In the mode of transfusion by the arteries, the blood necessarily becomes venous during its passage through the capillaries. In conclusion, Mr. Hueter observes that transfusion, whether performed through the veins or arteries, constitutes a weapon against diseases which can in no other way be contested, and points out the excellent results we may anticipate from its employment. (*Acztliches Literaturblatt*, No. 6, 1871, and *Langenbeck's Archiv*, 1870.)

The Replanting of Teeth.—Mr. Barker, of Charlestown, records an interesting case of a young lady who suffered from severe toothache. Various plans of treatment were adopted, both local and general, as the attempted removal of the filling from the right second molar, which was the chief seat of pain, the filling of the cavity with carbolic acid stuffing, withdrawal of blood from the gum, and subsequent painting of it with tincture of iodine \bar{z} iv, and ether \bar{z} j; removal of this stuffing and substitution for it of the ordinary arsenical paste; re-introduction of carbolic acid and Hill's stuffing; hydrate of chloral; drilling into the pulp cavity, and complete removal of the living pulp; hypodermic injection of $\frac{1}{6}$ of a grain of morphia, hot fomentations and cataplasms, applied with a view of promoting suppuration, &c. These various plans appear to have extended over five months. At length Mr. Barker determined to extract the tooth, and, if practicable, replace it. Accordingly chloroform was administered, the tooth was extracted, and the end of the root (fortunately this second molar had the roots joined) was cut off, and the tooth was instantly placed in a solution of tepid water, containing ten minims of carbolic acid to the drachm. The

socket was wiped with the solution, and the blood carefully removed. A broach was introduced into the pulp cavity, which was found to be entirely free, and the tooth was pushed into its former socket, the shape of which favoured its retention. The cavity through the tooth was left open, and the patient was dismissed. No after-treatment was adopted except an astringent wash, and no pain of any consequence was felt up to the date of the paper, three months after its extraction. On examining the part of the tooth removed, the periosteum was found to be greatly inflamed, and just outside the apical foramen was a small mass of apparent pulp tissue, resembling an abscess in appearance, but really consisting of true pulp tissue, containing multitudes of calcareous granules, which were obviously the cause of the inflammation. (*The Dental Times*, No. 1, July 1871.)

Balsam of Peru Ointment in Ulcers of the Cornea.—Dr. Warlomont gives the following prescription as an excellent means of effecting the cicatrisation of atonic ulcers of the cornea, and especially in that form which attacks the cornea of old people, or persons in a state of great debility, and which are both deep and broad :—

Red oxide of mercury, 1·5 grains.

Lard, one drachm.

Balsam of Peru, 8 to 10 drops. Mix.

Under the action of this ointment the progress of the ulcers is quickly stopped, and cicatrisation rapidly succeeds. Such ulcers, it is worthy of note, often heal up without leaving any opacity of the cornea, even when there was for a time imminent danger that perforation would occur. In perforating ulcers of the cornea, with hernia of the iris supervening in the course of inflammatory affections of the globe, and above all in purulent ophthalmia, the balsam of Peru ointment is the best topical application that can be made. It is also suitable for prolapse of the iris, and a torpid condition of the cornea in old people, occurring after the operation for cataract. Lastly, in scrofulous children, in whom the cornea is deeply ulcerated, or even perforated, it almost immediately stops the ulcerative process. Its application is painful in some subjects, but others bear it without complaining; fragments the size of a lentil should be introduced between the lids in the morning and evening, and care should be taken that the eyelids are not wiped for a few seconds. (*Journal de Médecine*, Juin 1871.)

Therapeutic Action of Acetate of Lead.—There is a form of pulmonary disease in which only one, or but few cavities exist, but in which there is coincident inflammation in

other parts of the organ. These cases of circumscribed mortification are, for the most part, curable, especially by the plan of turpentine inhalation recommended by Skoda. These, however, have the disadvantageous effect of increasing the inflammation in the immediate vicinity of the cavities, and this may proceed to so great a height as actually to prove fatal. In such cases Traube suggests that the use of acetate of lead in small doses, with small local bleedings, is likely to prove beneficial. When the febrile state has disappeared, tannic acid may be given. Besides the antiseptic properties which lead, in common with all astringents, possesses, it has an antiphlogistic, but no anti-febrile action, as Traube has shown by demonstrating the high temperature which occurs in lead colic. Where, therefore, it is desired to exert an influence on the intensity of the fever, the lead should be conjoined with an anti-febrile remedy, and the best adapted of these is digitalis. This is very requisite in cheesy pneumonia, when it is desired to arrest the inflammatory process and to effect absorption of the exudation. In these cases the doses must generally be somewhat large. A tonic line of treatment can only be employed in such cases when cavities have formed; whilst in cheesy pneumonia, which has been led to a successful issue, a too stimulant and supporting plan may act injuriously by leading to an abnormal tension in the pulmonary arterial system and to the formation of small aneurisms, which, bursting, may cause death by suffocation. Professor Traube also considers lead to be indicated in diseases of the bladder, when, by catheterisation, the germs of Bacteria have been introduced; disintegration of the urea, with development of carbonate of ammonia, may occur, leading to an extremely dangerous form of inflammation, with detachment of the mucous membrane of the bladder, inflammation of the peritoneum, and even abscesses of the kidneys. In these cases, which are almost always fatal, and are characterised by the extreme fœtor of the urine, Traube recommends that the bladder should be well washed out with water, and then antiseptically and antiphlogistically treated by means of injections containing one or two grains of acetate of lead to four ounces of water daily, or three or four times a day. If the inflammation have extended to the calices of the kidneys, he prescribes tannic acid in addition internally, which undergoes conversion into gallic acid during its passage through the system, and is eliminated by the urine. (*Der praktische Arzt.*, June 1871.)

Diseases simulating Meningitis in Infants.—In a clinical conference on this subject at the Hôpital des Enfants Malades, M. Bouchut remarked, that there are different species of pseudo-meningitis, as the pseudo-meningitis antecedent to acute dis-

eases, cutaneous eruptions, pneumonia, amygdalitis, gastralgia, chlorotic pseudo-meningitis, and the pseudo-meningitis of worms. Amongst eruptions, measles and scarlet fever are those that are most commonly preceded by symptoms simulating cerebral meningitis. Long practice has assured him that many of the supposed cures of cerebral fevers by leeches and calomel, put forth with perfect good faith, have only been cases of initial pseudo-meningitis in an attack of measles. In such cases the cerebral symptoms spontaneously disappear when the eruption declares itself. He gives, as an example, the following case:—On the 14th June, 1869, a lady brought a child three years of age to him. Ten days previously it was perfectly well, but had become sad and sleepy, and complained of headache. She had, moreover, frequently vomited, and suffered from constipation; the pulse was slow and intermittent. The year before an elder sister had died from true meningitis; considerable care was therefore taken in making an examination. Two days afterwards some papulæ appeared upon her face, followed by coryza, and it turned out to be only a case of measles, which followed its regular course. From the moment that the eruption appeared the simulated meningitis vanished. In many analogous cases in very young children, convulsions constitute the most prominent feature of the attack. Symptoms resembling those of meningitis not unfrequently occur amongst the prodromata of pneumonia. But it is more common to meet with them at the outset of angina tonsillaris, the initial phenomena of which are often such as to lead to an erroneous diagnosis. In infants, amygdalitis presents quite different symptoms from the same disease in the adult. In the former there is no painful dysphagia as in adults, nor that expression which betokens in so marked a manner the difficulty of deglutition. As amygdalitis never becomes phlegmonous in infancy, the jaw can be easily opened, and there is no obstacle to the movements of the neck. Pain in the submaxillary region, and swelling sometimes of the tonsil and sometimes of the lymphatic glands, are almost the only local signs. In some cases, however, acute otitis is present either with or without catarrh; but the point which attracts the most attention is the violence of the general sympathetic phenomena. The fever is intense; the face red and burning. There is an indescribable agitation, cries, and constant movement; delirium, alarms, and hallucinations; and as in this state, which is sufficiently alarming in appearance, there are sometimes superadded vomiting from indigestion and constipation, it is not unnatural to diagnose cerebral meningitis, and to combat this supposed affection by bloodletting, ice, mercurial frictions, and the like. But all these morbid symptoms are only a passing storm, which is not of a grave nature, and passes off

within forty-eight hours. If, before pronouncing the word meningitis, the interior of the throat of the child be examined with the aid of a spoon, it will be seen that there is intense redness of the velum palati, pharynx, and tonsils; and all the sympathetic symptoms proceed from this purely inflammatory angina, being, in fact, the consequence, according to M. Bouchut, of a congestive vaso-motor hyposthenia of the meninges, leading to hyperemia of these membranes, and caused by irritation of the extremities of the great sympathetic and of the glosso-pharyngeal nerves. As regards the treatment, when the cause of these morbid conditions has been recognised, M. Bouchut observed, that the tonsillitis should be treated by warm pediluvia of soap and water, or mustard and water, with mustard poultices, barley water, and syrup of mulberries; inhalations of the vapour of marsh-mallow water, careful diet, and rest in bed. M. Bouchut then referred to the characters of pseudo-meningitis from worms. This is so common, he averred, in some countries, that convulsions and verminous affections are absolutely identical expressions. Thus, in the Department of the Loire Inférieure, every surgeon has had opportunities of observing the cerebral symptoms characterising pseudo-meningitis caused by lumbrici or oxyuri. In such cases a cure is effected by the expulsion of the worms, though occasionally it may happen that, as we are taught by a law of pathological anatomy, simple cerebral and meningeal congestion of a reflex nature, in being prolonged, may lead to the abundant proliferation of cells, and finally lead to true meningitis. The diagnosis of verminous disease is, unfortunately, very difficult, as the only certain means of recognising the presence of worms in the intestines consists in the application of the microscope, as recommended by M. Davaine, and the discovery of the ova in the fæces. But the microscope is rarely used, and vermifuges are necessarily often employed tentatively. Of these M. Bouchut gives the preference to santonin and coal-tar. (*Journal de Médecine et de Chirurgie*, par H. Chaillou et J. Lucas-Championnière, tome xlii. cahier 2.)

Hydrochlorate of Berberin in Splenic Enlargement resulting from Malaria.—Signor Paolo Machiavelli describes the chemical and physical characters of this salt in these terms. Though apparently pulverulent, it really consists of minute brilliant needles, or very small prisms, arranged concentrically in colour—it is lemon-yellow; taste very bitter; no smell. At low temperature it is sparingly soluble in alcohol and in water, but dissolves easily at high temperature, a considerable proportion remaining in solution on cooling. It is absolutely insoluble in æther, and is scarcely dissolved by either fats or the

fixed or volatile oils. If it be exposed to a very high temperature, it swells, and becomes converted, without loss of weight, into a resinous mass. Signor Machiavelli's first experiments were made upon guinea-pigs, into which he repeatedly injected hypodermically from 3 to 15 grains of the salt. The animals remained well, and after death no pathological appearances were presented beyond slight diminution in the size of the capsule, and thickening of the capsule. After having thus proved its harmlessness in regard to the organic functions, he commenced a series of experiments with it on man, commencing with the same doses, and gradually increasing it till sixteen grains were taken in the twenty-four hours. The number of patients was fifty-one, the greater number of whom were soldiers, who, in consequence of exposure to marsh miasma, were suffering from enlargement of the spleen. Amongst these thirty-four were cured, sixteen were improved, and one died from miliary tuberculosis. In several of them the enlargement of the spleen was accompanied by ascites, and in most of them the usual treatment, especially by means of quinine, had been tried in vain. Signor Machiavelli takes the opportunity of communicating the results of his pathological investigations on the nature of the tumour in these cases, and states that he finds a vast accumulation of white blood-corpuscles rather shrivelled, and in transitional states, or in actual regressive conversion into pigment granules. These conditions appear to show, he thinks, that the malarial poison exercises an injurious influence on the contractility of the elastic tissue of the capsule, and upon the trabeculæ by paralysing or diminishing the interchange of material taking place between the blood and the splenic pulp and corpuscles. The physiological action of the hydrochlorate of berberin appears therefore to be that it acts on the elastic elements of the capsule and trabeculæ, to which it restores their lost tone, and consequently re-establishes the physiological pressure, and the chemical interchange between the splenic pulp and the blood. (*Giornale Veneto*, and *Aerztliches Literaturblatt*, No. 7, 1871.)

The After-treatment of Amputations.—M. F. Bartscher, as long ago as 1856, recommended that the use of bandages should be entirely dispensed with after amputation, and now gives the results of his mode of treatment continued from that date to the present time. He formerly adopted the circular method of amputation exclusively, but has latterly used the flap. In all cases the wound was simply covered with cold-water dressing, changed twice a day. Each time that this was renewed the under-surface of the stump was carefully cleansed, but the surface of the wound itself was untouched. He records four amputations of the thigh, seven of the leg, one of the arm, and

two of the fore-arm. Out of these he had only two deaths, one of whom was already suffering from pyæmia when the operation was undertaken. (*Deutsche Klinik*, Nos. 27–29, and *Centralblatt*, No. 34.)

Treatment of some Affections of the Nasal Cavities.—

In the course of the winter various forms of disease occur in the northern regions of Italy, which have their starting-point from, and their seat in, the nose. For erythema, a troublesome and painful accompaniment of acute ozæna, attacking the upper lip, it is customary there to apply, three or four times a day, glycerized starch paste twenty parts, laudanum one part. This affection, when once excited in infants at the breast, is very persistent, and the above remedy answers well. Demarquay recommended the injection into the nostrils, by means of a glass syringe, of a little glycerine and water. In cases where the coryza is of a chronic character, the following prescription is stated to be very successful in effecting a cure:—Aq. rosarum sixty parts, glycerine sixty parts, tannin one part. The use of glycerine is well adapted for cases accompanied by a disagreeable smell in the nose, and the frequency of the application should vary with the intensity of the affection. If the suppuration be of a syphilitic nature, the glycerine may be combined with calomel, or with binocide of mercury. In scrofula a little iodine may be added to the glycerine. The ill odours accompanying ozæna may also be almost infallibly removed by means of injections of solutions containing the permanganate of potash in the proportion of one part of the salt to ten of water. Darcey injects into the nostrils a solution of 0.12 of tannin, 1.75 of glycerine, and 2.80 of water. Galligo, on the other hand, prefers injecting a solution of eight parts of chlorate of potash in 100 of glycerine. Glycerine and starch readily lend themselves to the application of mercurial, lead, and iron salts; and glycerine is useful in cases of odourless nasal humours, and herpes of the nose and lip. (*Gazetta Medica Ital.* and *Aerztliches Literaturblatt*, No. 7, 1871.)

Effects of Conium in Epilepsy.—An interesting paper on this subject appears in the *Philadelphia Medical Times* by Dr. Gonzalez Echeverria and Dr. Macdonald of New York. They observe that conium, although not altogether a new remedy for epilepsy, has not been praised so much as other anti-epileptics, probably on account of the doubtful or insufficient strength of the extracts or tinctures of hemlock as hitherto prepared according to the different pharmacopœias. Since the neurotic action of conia was prominently brought out by the experiments of Dr. John Harley, who has also shown that this principle bears the same relation to the ripe and unripe hemlock fruit as does opium to the ripe and unripe fruit of the poppy, they have endeavoured

to ascertain the true medicinal application of so valuable a remedy in nervous diseases generally, cautiously inquiring as well into its beneficial as its injurious effects. Their researches, therefore, extend over very dissimilar maladies; and they give a series of examples selected from among those they have closely watched, daily, or more than daily, for nearly a year, in order to determine whether conium rendered a positive service in epilepsy. They have been so much impressed by the increased comfort and improvement of the patients, that the conviction has gradually forced itself upon their minds, that conium possesses a great power to remove the irritability and depression which are common to epileptics, and that, while acting as a tonic, it is furthermore the safest narcotic that can, under the circumstances, be employed, and free from the ordinary evils of morphia, belladonna, &c.

It need scarcely be mentioned that they have carefully tested the action of the preparations employed in every case, and continued or increased the quantity administered so long as it has relieved or benefited the patient. They state, in addition, that in these researches they have employed preparations of the unripe fruit of hemlock, which, as already asserted, contains the most conia, or active alkaloid principle. They have administered, over and over again, the extracts and tinctures of conium of the American Pharmacopœia, in extremely high doses, with hardly any evidences of those effects appreciable when using the English juice of hemlock obtained from the green fruit, or the fluid extract prepared from the fresh unripe fruit by E. R. Squibb, M.D., of Brooklyn, which has proved to be the strongest of the fluid preparations of hemlock they have as yet employed. They have also endeavoured to study the action of conicine, but have been unable to procure reliable preparations of this substance, and the results so far obtained are too indefinite to be worthy of record.

The authors then give a series of cases, the particulars of which, with the action of the medicine, are very fully given.

The ultimate effect of conia, as shown by Dr. John Harley, is to produce sleep. To induce such effect in epilepsy, conium must be administered in frequently repeated doses. Ordinarily no quantity short of half an ounce of the English juice, or from half to one drachm of Squibb's fluid extract of the fresh unripe fruit of hemlock, will influence the nervous centres in any decided narcotic manner. The darker the juice, the more powerfully will it act. The utmost effect of hemlock becomes conspicuous in from twenty to thirty minutes after two or three ounces of the juice, or one or two drachms of Squibb's fluid extract, have been taken. Patients are met with, of course, in whom the maximum effect is not induced unless such respective quantities are exceeded.

The operation of conia lasts from two to six hours, and then disappears, leaving no other traces than a sense of diminished muscular energy, in a few instances accompanied by nausea or hiccough, and, more frequently, by a burning sensation on urinating, both of which phenomena are of short duration. The nausea, hiccough, and double vision following the exhibition of large doses of conium are noted among the physiological effects of conium by Stillé (*Therapeutics and Materia Medica*, vol. ii. p. 262, Philadelphia, 1864).

It is important to remark—and in this their observations corroborate those already made by Harley—that the weaker and more inactive the epileptic is, the larger will be the quantity of conium required to affect him as a narcotic. And it is striking, as further asserted by Harley, that conium really operates as a tonic upon the muscular system. In this respect, conium, when not carried to the degree of paralysing the muscular power, resembles in its action cod-liver oil. The fact is quite remarkable with epileptics taking three or four drachms of the juice, or thirty minims of Squibb's fluid extract, three times daily, for the irritability of the spinal system gradually diminishes, with notable improvement in their bodily condition. This tonic effect of conium is no less obvious in myelitis. They have in no case noticed that conium interferes with the sensory functions.

They have found the pulse regular throughout the operation of conium, but not of undiminished force and volume, as stated by Harley. Their observations lead them to believe that conia, from its special influence on the pneumogastric nerve, operates on the innervation of the heart with paralysing effect, the internal sensibility of the organ being affected through the depressor nerve, or sensitive cardiac branch of Cyon, which accounts for the bloodless condition of the limbs, from contraction of the peripheral blood-vessels, when the full action of conium is produced. Conium, therefore, differs from bromide of potassium, which operates in a paralysing manner mainly on the vaso-motor nerves. They are satisfied that the sympathetic system is primarily involved in the production of epilepsy, circulation being thereby deranged from the inception of the disease. Hence the advantage which may be derived from the judicious employment of remedies like bromide of potassium and conium, operating chiefly on the motor nervous tracts and the innervation of the whole circulatory system. They look upon cerebral anæmia, due to excitation of the arterial nerves, as the initial link in the chain of epileptic phenomena. And they proceed to show how the confusion generally made between hyperæmia and congestion explains why cerebral hyperæmia may be still considered by some writers as an etiological factor of epilepsy. (*American Medical Times*, April 15, 1871)

The Treatment of Simple Ulcer of the Stomach.—Dr. H. Ziemssen of Erlangen, in opposition to the usual plan of treating these ulcers by astringents, recommends attention to, and the removal of, all circumstances which may interfere with the healing process. With this object in view, he considers the first and most important indication to be the neutralization of the stomach, and for this purpose he finds the sulphate of soda to be the most appropriate. He also observes that common salt will limit acid fermentation, but that its effects are not sufficiently powerful, and that it acts too powerfully on the evacuations. The Carlsbad water is commonly used in chronic gastric ulcers, and proves of service in consequence of the quantity of Glauber's and common salt, and of carbonate of soda. He regards the Carlsbad salts as superior even to the waters themselves, as being cheaper, and, at the same time, containing more Glauber's salt, and when taken in hot water occasion more frequent evacuations. He prescribes from two to four drachms dissolved in a pint of water, and taken fasting in the morning in four doses, with an interval of ten minutes between each, at a temperature of 131° Fahr. The importance of proper diet in the disease is recognized by all practitioners. On account of the mechanical irritation they excite, and their long retention in the stomach, all sorts of fruit, leguminous vegetables, cabbage, and black bread, are not to be recommended. Chemical compounds that are likely to prove injurious are acid, fat, sugars, and saccharine biscuits or fluids, beer and chocolate. On the other hand, the roast or broiled flesh of fowls, or of veal, eaten cold and without sauce, smoked ham, white bread, milk and light French wine, are very well adapted for consumption. These kinds of food undergo fermentation with difficulty, in fact, actually prevent fermentation; whilst others, as the milk, pass rapidly through the stomach and have an alkaline reaction. Invalids who are unable to take milk he treats in the following manner. In the morning, whilst fasting, the Carlsbad salts as already stated, though if they occasion more than one or two evacuations daily the quantity must be reduced. Half an hour after the last dose he gives a cup of milk or of *café au lait* with white bread. About half-past ten a second breakfast with cold broiled veal or fowl, with white bread and a glass of French red wine. At one o'clock, meat and milk, or meat-broth, broiled or roast veal or fowl without sauce, white bread, and a tablespoonful of potatoes mashed with milk; a glass of red wine. At 4 P.M., some milk, cold roast meat, with white bread. Between 8 and 9 a flask of a compound he terms *Natronsauerlings*. At 9, the invalid retires to rest, and he is directed to avoid much exertion, either mental or bodily. The region of the stomach is to be protected from cold by flannel, the activity of the skin from time to time

promoted by lukewarm baths, which are more refreshing if they contain carbonic acid gas. Morphia may be used to relieve the gastric pain, either injected subcutaneously or in doses of $\frac{1}{12}$ th of a grain for a dose, though it should not be continued too long. If hæmorrhage occur, which is, however, rare if the above means are steadily pursued, light icebags should be placed upon the epigastrium, complete rest of the body enjoined, and all food and drink interdicted. On the second and third day, alum-whey cooled with ice may be taken in small quantities at a time. All purgatives should be avoided, and instead of them the bowels should be moved by lukewarm clysters. On the fourth day after the bleeding, the use of milk and broth may be carefully resumed, with a little iced champagne. If perforation have occurred, ice is, as is well known, the sovereign remedy to relieve the sufferings of the patient. As regards the consequences of gastric ulcer, especially of stricture of the orifices, the indications are, return of the gastric catarrh, retention of the contents of the stomach with acid fermentation, vomiting after meals, constipation, sinking of the hypogastrium, dilatation of the stomach, which is capable of physical proof, &c. These symptoms require the due application of sounds and of the stomach pump. The so-called system of dry diet may be adopted with advantage for the obstinate constipation so commonly remaining even for years, as the consequence of gastric ulcers. M. Ziemssen recommends the use of rhubarb before going to bed. He prescribes 3 to 5 grains of the simple extract of rhubarb, or when the constipation is more complete of the compound extract of rhubarb, to which, if any pain follows its employment, or if great atony exists, he adds a tenth of a grain of extract of belladonna, or of the extract of nux vomica. (*Wiener Medizinische Presse*, No. 40, 1871.)

Palatable Castor-oil.—Castor-oil may be rendered as “sweet as honey” to take by combining it with equal parts of pure glycerine, with which a few drops of cinnamon oil have been previously rubbed up. (*Boston Journal*, May 18, 1871.)

Powdered Camphor in Phagedænic Chancres.—Dr. Netler has shown, in the *Gazette des Hôpitaux*, that hospital gangrene yields to the application of powdered camphor. Thereupon M. Baudoin, as stated in the *L'Abeille Méd.*, was induced to try the same remedy in phagedænic chancre. Three cases are quoted to prove the efficacy of the application, but the author does not allude to the means employed previously. (*Lancet*, Oct. 14, 1871.)

The Causes of Danger accompanying Boils and Carbuncles of the Face.—Dr. Reverdin observes: 1. That anthrax and furuncle of the face are particularly dangerous. 2. This

depends upon the tendency of the disease to be accompanied by phlebitis. 3. Which occasions death either by extension to the sinuses of the dura mater, or pyæmic poisoning. 4. Carbuncle of the lip often inclines to phlebitis, oftener than when it attacks other parts of the face, which is due to the peculiar anatomical characters of the lips. 5. Carbuncle of the lips has nothing in common with pustula maligna. A deep and swiftly made incision is the best means of preventing or cutting short phlebitis. The peculiar structure of the lip, from which the danger of carbuncle proceeds, consists in its rich musculature and the small quantity of fat it contains. Between the skin and the mucous layer only muscular fibres occur, interwoven with vessels and glands, whilst some bands of delicate connective tissue lie beneath it. Such tissue is very distensible, and when inflammation arises in it, tension is rapidly produced, which easily propagates itself to the veins, and then favours thromboses. (*Lyon Méd. Gaz.* 1871.)

Notes and Queries.

DEPARTMENT OF ANALYSIS AND INVENTIONS.

EXAMINATION OF WATER FILTERS (*continued*).

NO. 2. LIPSCOMBE'S PATENT WATER FILTER.—Ordinary portable filter of brown stone ware, small size, price 12s.; filters one pint in about four minutes. The filter holds 3 pints of water at a time.

NO. 3. SPENCER'S PATENT MAGNETIC PURIFYING WATER FILTER.—Ordinary portable filter, brown stone ware, smallest size, price 1*l.* 1s.; filters one pint of water in four minutes. The filter holds about 3 pints of water at a time.

	UNFILTERED WATER.	SAME WATER FILTERED THROUGH	
		No. 2 FILTER.	No. 3 FILTER.
Colour in 20-inch tube . . .	Yellowish brown	Almost colourless	Almost colourless
Hardness on Clark's scale . .	12·2	11	12·1
GRAINS PER IMPERIAL GALLON.			
Chlorine	1·400	1·295	1·365
Nitrogen in ammonia	0·0026	0·0010	0·0018
Organic nitrogen	0·0155	0·0007	0·0024
Nitrogen in nitric acid . . .	0·267	0·211	0·267
Total dry residue	18·060	15·260	17·360
Oxygen absorbed from permanga- nate of potash ¹	0·0960	0·0130	0·0240

The chief object which a filter, to be used for domestic purposes, has to accomplish, is the removal of organic impurity from the water. All three filters under examination accomplished this in a very satisfactory manner.

Filter No. 2 was, however, in this respect the most efficient; indeed this filter effected an almost perfect removal of such impurity, as is shown by the remarkably small amount of organic nitrogen left in the water after filtration through this filter. If, however, we take the amount of oxygen absorbed from permanganate of potash as a measure of the purity of the water,

¹ The amounts of oxygen absorbed given in the previous table should be multiplied by four.

filter No. 1 would stand first in the order of merit, since it removed the kind of matter indicated by this test almost absolutely, even after four years' use. (The water passed through this filter, when acidified and coloured by an amount of permanganate equivalent to 0·1 grain of the salt per gallon, retained some colour even after forty-eight hours' standing.) The colour of the residue left by the water filtered through No. 1 was perfectly white, that left from filter No. 2 was very slightly yellowish, while that from the water passed through No. 3 was of a pale brown colour.

On the whole, we may therefore take Nos. 1 and 2 to be about equal in efficiency, while No. 3 is slightly inferior to both in respect to the removal of organic impurity from water.

CORRESPONDENCE.

CINCHONA IN THE TREATMENT OF ABSCESS.—Dr. J. Allen Couatts, M.D., Banchory Terrace, writes as follows:—"Notwithstanding the many and great improvements made in the practice of surgery of late years, we are still, I think, far from having arrived at any satisfactory conclusion in regard to the treatment of abscess—*i.e.* collections of pus or matter—in various parts of the body.

"Surgeons and medical writers, from the times of Mason Good—who, writing of boils, declares that they are chiefly found in persons of high health, and in the vigour of youth—down to the present day, are still too much in the habit of looking upon deposits of lymph, which degenerate into pus, as the result of an active hyperæmia or hyperinosis; not only of the part affected, but also of the system generally. Consequently, the routine of treatment still most commonly inculcated in text-books on the subject, and followed in practice, is what is called the antiphlogistic, *viz.*: Local abstraction of blood by leeches. saline or drastic purgatives, antimonials, low diet, and perhaps even mercury.

"Now the opposite of this should be the case; for, in whatever part of the body an abscess is situated, it is essentially the result *or product of a low vital condition*; and the health of the individual is, at least for the time being, decidedly below par.

"Take, for example, mammary abscess, cases of which, unfortunately, are but too often met with by every one in general practice. It is not in strong, healthy women that these are to be found; but in constitutions naturally weak, which have been exposed to the further debilitating influences of tedious labours, excessive loss of blood, or want of a sufficiently nutritious diet; together with the further drain upon the system which lactation entails.

"In such cases the attempts to bring about absorption of the *aplastic* lymph already effused into the gland, and so to prevent abscess, have in my experience uniformly failed. And yet we are told that we must attempt to do this by leeching, antimonials, fomentations, absorbents, &c. The only result of such treatment is to retard, not prevent, the formation of pus; and consequently, by prolonging the time of recovery, to further weaken the patient.

"The object of our treatment then is, not to try to bring about absorption of the lymph already effused, for that we cannot do—at least to any extent—but to convert the effused lymph into matter; that is, induce suppuration, and that as speedily as possible.

"For the last three years, I have treated all cases of abscess, whether acute or chronic, on a purely tonic and stimulant plan; commencing this treatment as soon as any hardness of the part leads me to suppose that effusion of lymph had taken place.

"The tonic, above all others, which seems to be of value in the treatment of abscess, is cinchona; which in full doses, and accompanied with wine, has a truly wonderful power in breaking down effused lymph, and so hastening the formation of matter.

"This method of treatment is by no means new or original, for the same plan has lately been very strongly advocated by Mr. Skey, of St. Bartholomew's, in a paper in the *Lancet*.

"Still I think it is so important that it cannot be too strongly or too often brought before the notice of the profession.

"I shall best illustrate my plan of treatment by giving one or two short extracts of cases.

"CASE I.—Mrs. G——, wife of a labourer, aged 25, Oct. 1868. Called to see her about a month after her confinement; found the mammary gland greatly swollen; very hard and tender to touch; general feverishness, with quick, though weak, pulse. Ordered a mild laxative, with soothing applications to breast; $\frac{1}{4}$ gr. of morphia at bedtime; 6 oz. of wine during the day, with the following mixture:—℞ Sp. chloroform. $\overline{3}$ iiss, tinct. cinchonæ co. $\overline{3}$ ij; a teaspoonful every four hours. (The chloroform not only acts as a sedative, but also renders the cinchona more palatable.) In five days, fluctuation being very perceptible, the abscess was opened, and exit given to about 8 oz. of pus. The wound healed rapidly.

"CASE II.—Mrs. H——, aged about 65. Has a firm, hard, and irregular tumour, of about a month's growth, extending from the lumbar vertebræ, along and above the crista ilii, as far as the anterior superior spine. Looks pale and sallow, and complains of weakness and want of appetite. Very little pain in the tumour; and no appearance of redness or fluctuation, except at one small spot near the spine.

"Ordered : R Ammon. sesquicarb. gr. v, tinct. cinchonæ co. ʒj, sp. chloroformi ℥v.; M. ter in die : 8 oz. of wine, and nourishing soups.

"In about twelve days, as fluctuation was distinct over most of the swelling, the abscess was laid open, and one and a half pints of pus discharged. The part was dressed antiseptically, and the sac of the abscess gradually contracted, and the opening healed.

"This patient died of phthisis about twelve months after, and shortly before death, a slight sero-purulent discharge exuded from the site of the wound, which had again partly opened."

ON COLOCENTESIS.—Dr. Clifford Allbutt writes as follows : "In February 1869, I published in the *Practitioner* the short notes of a case of double pneumonia, attended with paralytic distension of the colon, in which case puncture of the colon was practised with great relief to the distress of the patient. At the time when this operation was performed for me by my friend and colleague, Mr. Teale, I was unaware that it had ever been practised in the human subject. Nor am I aware, for lack of accurate dates, whether the priority in this matter be really due to Dr. Fonssagrives, of Toulouse, or myself. The question, however, does not seem to me to be one which is worth much trouble in the answering. My own notion of operating in such cases came upon me partly because I had witnessed such sad suffering in tympanitis when yet powerless to relieve it, and had anxiously taken my inaction to heart. Moreover, I had found puncture of the pericardium successful but a short time before, and this had emboldened me; finally, as a boy, I had seen this very colacentesis performed upon cattle with a success which imprinted itself upon my youthful mind, even then imbued with a love for medicine. These notions, working together, determined me to puncture in the case of which I have referred. Mr. Teale happened to be in the ward at the time, he happened further to have a fine trocar in his pocket, and, at my request, he, nothing loth, pricked the colon twice with immense relief to the patient. This patient, as I said in my last communication on colacentesis, died of his double pneumonia, but no trace of the punctures was visible *post mortem*. Since that time I have myself performed colacentesis four times, deeming it as venial an operation for a 'physician' as the injection of morphia. Three times I have used Weiss's No. 1 exploring trocar, which for this and other purposes I keep always in my hand-bag,—and twice I have used my morphia needle. I think the trocar is as harmless as the latter, and is more effectual in allowing the more rapid escape of air.—Case 1 has been already described.—Case 2 was an old gentleman, whose general malady I forget, but I believe it was pneumonia. I only saw him once, and was called in hastily on

account of his extreme distress from tympanitis. I found him in great danger, as the distended bowel was pressing up the diaphragm, and putting his probably degenerate heart into great jeopardy. He had intense orthopnea, and intermittent labouring pulse, and a dusky face. My visit was late at night, and his former attendant out of reach, but, under the circumstances, I ventured to puncture the colon twice; the air rushed from the canula with great violence, and in a few minutes, with the aid of some æther in hot brandy and water, he was able to lie down in peace. He was a stranger in Leeds, having been taken ill in a second-rate lodging-house; and I had forgotten about the case until he wrote to me some weeks later from a distant village in Yorkshire, enclosing his fee, and assuring me that I had saved his life.—Case 3 was one of typhus fever: the tympanitis was due to paralytic distension of the bowel during a high temperature; the air issued badly, but the patient seemed decidedly relieved as I pressed the air from the body by gentle manipulation. He died a few days afterwards of the fever, the belly having soon refilled. As the bowel was evidently palsied, and the patient too ill now to feel it, I did not care to repeat the operation.—Case 4 was a case of heart disease, in which sudden and intense tympanitis threatened to kill the patient, as in Case 2. I punctured the abdomen with the same success as in Case 2. The patient lived some weeks or months after the operation. In this case I used the needle of my morphia syringe, and made more than two punctures—I think four. In all cases I puncture only the transverse and descending colon, trusting to renewed peristalsis for the emptying of the ascending portions. In fevers with high temperature when the palsy of the bowel is the cause rather than the consequence of tympanitis, the operation gives but a temporary ease. Such again was my Case 5, in which I punctured the colon for the temporary relief of a patient in the Leeds Fever Hospital. He could scarcely testify his relief, and I saw no more of him; but I heard that he died two days afterwards with renewed tympanitis. In all these cases the operation, as such, was quite without ill effects; in three out of five it was of marked benefit, while in two I believed that it saved life. In conclusion, I would refer to a paper by Dr. Hancocke Wathen, of Fishguard, in the *British Medical Journal* for October 21, 1871. Dr. Wathen there relates several cases of colocentesis, including one in which he operated with relief and without harm to his patient. The patient died of pre-existing peritonitis. The perusal of his paper has stimulated me to give these results of my experience in the hope that this important subject may be followed up. I am sorry that, as the operations were in most cases performed on the spur of the moment, I have not kept any notes of them—not even of the dates of any save the first, which was performed in the Leeds Infirmary.”

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¹ Any of the foreign works may be procured on application to Messrs. Dulau, of Soho Square, W.C.; or Williams & Norgate, of Henrietta Street, Covent Garden, W.C.

THE PRACTITIONER.

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Original Communications.

ON THE THERAPEUTICAL VALUE OF THE HYPO- DERMIC INJECTION OF ERGOTIN IN HÆMO- PTYSIS.

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THE use of ergot of rye in its application to the practice of medicine appears to be almost entirely limited by the great body of the profession to obstetric practice. In a suggestive paper published in the *Practitioner* for September 1868, Dr. Alfred Meadows advocates the extended use of this drug; which he had found extremely useful in various uterine and vesical affections; and in the same spirit I venture to submit the following observations on a therapeutical application of ergot, hitherto but little known, with the hope that the experience of others may be elicited, and so an accurate knowledge of its real value be arrived at.

It seems to me that the restricted use of ergot is the direct result of the want of a full appreciation of its great physiological action; that is, of the power which it possesses of inducing contraction in muscular fibre of the involuntary or non-striped

variety generally, and not merely in that of the uterus. Although having an important bearing on the general action of ergot, the following remarks apply especially to its action on the blood-vessels, of which unstriped muscular fibre is so important a histological element.

Experimental research has conclusively shown that ergot contracts the minute arteries, and by so doing increases the blood-pressure. A simple experiment will, as Dr. Meadows has shown, be sufficient to establish the former of these propositions: thus, if a single grain of ergotin in solution be injected subcutaneously into the web of a frog's foot previously extended under a microscope, in a few minutes the circulation will be seen to become much quicker, then it will stop for a few seconds and oscillate in a spasmodic, jerking manner; after about half an hour, the blood-current will gradually return to its normal even, steady flow. The well-known experiments of Brown-Séquard afford additional evidence on this point. He found that in the dog the vessels of the pia mater contracted during its administration, just as with belladonna, but that ergot acted more powerfully on the cord than belladonna: both of these agents diminish the reflex power of the cord. The second proposition, that the blood-pressure is increased, receives interesting corroboration from the recent researches, chiefly with the hæmadynamometer, of Dr. Ch. L. Holmes, published in the *Archives de Physiologie*, No. 3, for 1870. He finds that "ergot contracts the minute vessels by an action on their muscular walls," and "that this contraction augments the blood-pressure in the large vessels;" it is, moreover, found that previous division of the vaso-motor nerves does not prevent the narrowing of the minute vessels, and that this diminution of calibre is also produced in the minute vessels of the lungs, causing a temporary diminution in the pressure of the systemic arteries. This last result has a direct bearing on the whole subject of pulmonary hæmorrhages; and as it seemed to Dr. Holmes to be incapable of a scientific explanation, he performed numerous experiments in order to test its accuracy. Thus, he surmised that the effect might be due simply to the sudden introduction into the interior of the heart of a foreign body, and accordingly he substituted other substances for the ergot which he had injected into the jugular

vein of a dog; but whereas the injection of ergot was with great rapidity followed by sudden diminution of the blood-pressure, which remained depressed for several seconds and then reached a higher level than before the injection, no such result followed the injection of the other substances. This sudden primary descent of the pressure-curve occurred after ergot-injection, even when it was introduced at a distance from the heart, and when the cardiac nerves had been divided previous to the injection; so that Dr. Holmes is led to the conclusion that the occurrence is due to contraction of the pulmonary vessels, "impeding or even preventing the passage of blood into the left heart, and so diminishing the flow into the arteries and lowering their tension."

Such considerations as these lead us to hope that renewed and extended investigation by those who have the opportunity of inquiring into the therapeutical actions of the ergot of rye may assign this powerful agent its true place in our *Materia Medica*.

Ergot has long had the reputation of being a styptic; and as such has, in common with a multitude of others, been recommended in the treatment of hæmoptysis. Dr. Dobell (*British Medical Journal*, 1868, i. p. 630) quotes a case in Guy's Hospital under the care of the late Dr. Addison, which proved very intractable until ergot was administered. Dr. Dobell himself recommends it, but administers at the same time ergot, digitalis, gallic acid, and other preparations, which leaves us in doubt as to which of the drugs was the means of arresting the hæmorrhage. In a paper by Dr. Herman Weber (*Clin. Soc. Trans.* ii. 155), he remarks, "Another substance from which I have seen good effect in arresting severe hæmoptysis is ergot of rye in large doses, viz. from three to six drachms of the watery extract of our Pharmacopœia in twenty-four hours." I have not found the internal administration of ergot followed by the satisfactory results so frequently obtained from the use of gallic or sulphuric acids, acetate of lead, or sedatives; and in several cases it has produced such a disagreeable sensation of nausea that its use has had to be abandoned. In one case there was præcordial pain for half an hour after each dose.

An interesting paper published by Von Langenbeck in the

Berliner klinische Wochenschrift, No. 12, 1869, p. 117, "On the Hypodermic Injection of Ergot in Aneurism," contains the first account I can find of its administration by this method. He argued that, as ergot induced contraction of the smooth muscular fibres, it would be a powerful agent in producing hæmostasis. Two cases of aneurism, one in the right supra-clavicular fossa and the other of the right radial artery, were successfully treated by this means. Dr. Dutoit of Bern (*Langenbeck's Arch.* Bd. xii. No. 3) and others have successfully repeated this method of dealing with aneurisms. In some editorial remarks appended to the medical periscope of the *Edinburgh Medical Journal* for July 1870, a case is quoted where a patient who had bled to thirty-six ounces from the lungs, within a few minutes, had his hæmorrhage completely checked in three minutes by the subcutaneous injection of five grains of ergotin; and Dr. Allan Jamieson records a case in the *British Medical Journal* for June 3, 1871, in which the same treatment was successfully adopted in a slighter case. The last case attracted my attention to this mode of treatment, and I have since adopted it in eight cases, the particulars of which are now offered as data for judging of its value. The ergotin used was obtained from Messrs. T. and H. Smith, of Edinburgh, and a solution of five grains in ten minims of distilled water was employed, except in Case VIII., in which unusual irritation was produced by it; I therefore substituted a solution (prepared according to Langenbeck's formula) of three grains of ergotin, in equal parts of glycerine and rectified spirit, which produced very little irritation.

CASE I.—A. B., aged 22, the eldest of six healthy children, but whose father died young, of "consumption," had enjoyed perfect health up till June last, when after a long walk she suddenly began to spit up florid blood in considerable quantity. From that time till about the middle of September she suffered more or less from cough, with occasional streaks of blood in the sputa, but was otherwise well; menstruation regular. After dancing one night, she was attacked with severe hæmoptysis at 2 A.M., and when I saw her at 11 A.M. she looked rather anæmic, had a troublesome cough, and was expectorating mouthfuls of blood; temperature 99°·2 F.; pulse 84. Five grains of ergotin

in watery solution injected into the cellular tissue of left arm; enjoined perfect rest in bed. On a subsequent visit I found that no expectoration of blood had taken place since the injection. The only physical sign present was fine crepitation, audible at the close of inspiration over a limited area of the base of the left lung—no dulness anywhere. The crepitation had disappeared a fortnight later; and when I last saw her, nearly two months after the injection, no return of the hæmoptysis had taken place, and she was apparently in perfect health.

CASE II.—W. S., aged 30, a collector, had had rheumatic fever with heart affection in June 1868, profuse hæmoptysis the following year, and when I first saw him, eighteen months ago, he had a mitral regurgitant murmur, with the physical signs of consolidation at the apex of the left lung. I was summoned to see him at 2 A.M. on September 20, as he had been attacked an hour previously with sudden and profuse pulmonary hæmorrhage. On the 19th he had run to catch a train, for which it turned out that he had to wait about a quarter of an hour; he consequently got chilled, and from that time till the onset of the bleeding he had laboured under a sense of oppression in the chest, exactly similar to what he had experienced before the previous attack of hæmoptysis. During my presence he expectorated about two ounces of florid blood. Injected subcutaneously five grains of ergotin in watery solution; no return of the bleeding followed the injection. He had bronchitis, with considerable pyrexia, for a week, after which he settled down into his former quiescent state, in which he still continues.

CASE III.—A man aged 26 came under my care at the Hulme Dispensary on the 26th September, with severe hæmoptysis, which had lasted continuously for two days, although he was under medical treatment all the time. He had had cough and purulent sputum more or less for two years, with an occasional streak of blood in the sputum. On the night of the 23rd, after a hard day's work, he was stooping to take off his boots, when, without any previous cough, his mouth filled with blood; from that time till the morning of the 26th he had "spat up several pints of blood," according to his own account. His face was completely blanched, and the mucous lining of his lips and cheeks very pale. The physical signs indicated the presence of

a large dry cavity at the right apex and a smaller one at the left apex with fluid contents. Injected five grains of ergotin in watery solution. Not a single bloody sputum followed the injection till the 28th, when, after a severe fit of coughing, he again began to spit blood. The injection was repeated, with the same result, viz. the abrupt cessation of the hæmoptysis, which, however, probably owing to domestic inquietude, recurred on the night of the 29th, as I afterwards learned, when his wife insisted on his leaving Manchester, *en route* for Ireland.

CASE IV.—F. B., aged 62, a dispensary patient, had suffered from slight hæmoptysis for several days. The physical signs of pulmonary mischief were almost *nil*. There was slightly increased area of cardiac dulness, with accentuation of the second sound; no murmur. Injected five grains of ergotin in watery solution. At the end of two days the hæmoptysis had continued just as before. Repeated the injection, and the hæmorrhage ceased completely; only one or two small dark brown coagula following the second injection.

CASE V.—A. H., aged 17, came under observation with a cavity about the size of an orange at the apex of her left lung, and shortly afterwards she was attacked with severe hæmoptysis. Five grains of ergotin in watery solution injected; only a single bloody expectoration followed the injection, and no return of the hæmoptysis had taken place at the end of a month, when she was last seen.

CASE VI.—J. C., a milliner, aged 22, began to spit blood in May last, for two or three days, in considerable quantity, and again a fortnight later. She remained in fair health till the 11th of October, when hæmoptysis again recurred to the extent of "nearly a quart of bright red blood" before I saw her. There were signs of incipient consolidation at the right apex; no cardiac murmur, but there was accentuation of the second sound: the sounds were altered in rhythm. Injected five grains of ergotin in watery solution. No blood expectorated till the 15th, after a severe fit of coughing, when on three occasions a streak of blood was detected in the sputum. From that time till the 4th November there was no more hæmoptysis. The injection produced a good deal of pain and induration around the seat of puncture in this case, lasting till the 19th of October.

CASE VII.—H. M., a tubercular-looking lad of 19, had had slight hæmoptysis for some days prior to my seeing him, a few hours before which he had spat up several mouthfuls of pure blood. He had very little cough; no signs of tubercular mischief in the lungs; temperature, 98°·9 F. Injected five grains of ergotin in watery solution; only one bloody sputum followed the injection. Two days afterwards the cough had increased; temperature, 100°·2 F. A fortnight later there had been no return of the bleeding, but slight comparative dulness could be detected at the apex of the left lung, with slightly increased vocal resonance.

CASE VIII.—J. W., an iron-dresser, aged 28, was in good health till last March, when he caught cold and continued to expectorate phlegm for two or three months. He then "caught a fresh cold," and ever since his sputa have been streaked with blood. The sputa are tenacious, not frothy. He spits most blood when he is at work, but "feels easier" then. There are no physical signs except slight sibilant rhonchi, and rather feeble vesicular murmur all over the chest. Injected five grains of ergotin in watery solution on 1st November. Expectoration of blood took place once on the 1st November, and once on the morning of the 2nd; but the hæmorrhage was considerably increased on the afternoon of the 2nd, and continued till the 6th. So much irritation had been produced by the previous injection, that I could not repeat it till the morning of the 7th, when three grains of ergotin were injected, dissolved in equal parts of glycerine and rectified spirits of wine. There had been no return of hæmoptysis on the morning of the 14th, when he was last seen, and no trace of irritation from the second injection.

Besides these eight cases, I am indebted to my friend and colleague, Dr. Bowman, for an opportunity of seeing with him, on the 19th of October, Mrs. D., aged 60, who during the two preceding days had been spitting blood continuously, except for about six hours, when there was almost complete cessation. About 3 P.M. on the 19th, however, hæmoptysis recommenced, when she was ordered ten-minim doses of the liquor ergotæ every two hours; but this producing no effect on the hæmoptysis, Dr. Bowman was again summoned at 9 P.M., and he kindly asked me to accompany him. She was then expectorating blood

profusely, an incessant hacking cough impelling her to do so every few seconds. The only physical signs were a patch of dulness about the size of the palm over the left back, between the angle of the scapula and the spinal column, with slightly increased vocal resonance, and accentuation of the second sound of the heart. Dr. Bowman injected five grains of ergotin in watery solution. She had absolutely no hæmoptysis afterwards; and when last seen, on October 26, she was apparently quite well. The accentuation of the second sound remained.

THE DIAGNOSIS OF AFFECTIONS CAUSING EAR-ACHE.

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THE communication of Dr. Anstie in the October number of the *Practitioner*, on Auricular Herpes Zoster affecting one side, leaves nothing to be said on the pathology or treatment of the affection; and the suggestion, that this may frequently be unrecognised as a cause for ear-ache in children or adults, is extremely valuable, and should be borne in mind when examining patients suffering from this symptom.

It may be useful for purposes of diagnosis to consider what further symptoms will enable us to put on one side other conditions which commonly give rise to it, so as to use caution in the treatment before the appearance of the eruption.

Ear-ache is one of the earliest symptoms in several affections either of the external meatus or of the tympanic cavity; and of these, the latter, in the case of children and young persons, are of far greater frequency. Firstly, with regard to the external meatus. In inflammation of this part, either the diffused or the circumscribed variety, the pain is one of the earliest symptoms, but it is invariably accompanied with tenderness of the meatus; and where there is no other sign, such as tumefaction and redness, this symptom of tenderness will at once be elicited by the sensation felt on the introduction of the speculum.

If the examination be made within a few hours after the commencement of the pain, inflammation will be shown, even when very slight, by the difference experienced in the feelings of the patient when the affected side and the unaffected side are in turn examined. This, I understand, was not the case with Dr. Anstie, even after he had suffered for four or five days; and by that time, if the meatus had been the seat of inflammation, the case

would have been clear: there would have been unmistakeable tenderness within the meatus, as well as in front of the tragus, in addition to redness, swelling, and pain on movement of the jaw. The pain, too, as Dr. Anstie observes, would not have intermitted or departed until suppuration had been established and an exit for the pus had been naturally or artificially made. An affection more likely to be confounded in the early stages with neuralgic herpes in the course of the inferior maxillary nerve is catarrh of the mucous membrane lining the tympanum; not the purulent form, for here the pain is constant until the pus has found an exit; but cases where the secretion, though readily effused, is strictly of a mucous character. Although this is generally unattended with pain, it is not unusual for such patients to suffer pain for a few hours at a time; pain which goes away and returns at intervals. In the early stage, before the appearance of the tympanic membrane gives any assistance to diagnosis, there are two symptoms which are characteristic of this state of the tympanum. Firstly, impaired hearing; this is always present, and with adults is easily detected, but with young children it is not always possible to determine this. Secondly, the evidence of increased secretion within the tympanum, as shown by auscultation. The ears of the patient and surgeon being connected by pieces of light india-rubber tubing, an intelligent adult will inflate the tympana with his mouth and nose closed, and the healthy sound heard on the one side as the air impinges on the membrane, and the too moist sound on the other, will be distinctive of the different conditions of either tympanum. To evoke this symptom with a child, a stream of air must be forced into the tympana by blowing through a tube, the other end of which is placed into the inferior meatus of the child's nose, while he is made to swallow (Politzer's method). With very young children, owing to the great patency of the faucial orifice of the Eustachian tube, swallowing at the time is not necessary. It is better to use a tube than a Politzer's bag, as the noise made on compressing it is liable to mark the sounds which are listened for.

By such observations, I suggest, the chief causes of ear-ache may be eliminated in approaching a case of the kind detailed by Dr. Anstie.

NOTES ON EPILEPTIC ATTACKS AND PARALYSIS AS RESULTS OF ALCOHOLIC EXCESS.

BY C. HANDFIELD JONES, M.D., ETC. ETC.

IN a recent paper, read before the Harveian Society, I chose for my subject a group of disorders of the nervous system whose cause was known, though its mode of action was a matter of some doubt. In the present paper I shall follow out a somewhat similar review, though the morbid influence which I now incriminate is a very different one. Heat was the *causa mali* on the former occasion, alcohol on the present; both beneficial and helpful vital stimuli when acting moderately, but fearfully pernicious when they are excessive. Both may morbidly excite nerve force, or disorder, or paralyse it. Many morbid phenomena of this kind are only too familiar to us, but I propose in the present communication to draw attention to two which are less frequent than others, and yet not rare. These are epileptiform paroxysms and spinal paralysis, which supposing their causation unknown might easily be mistaken for disorders of a totally different origin. Mr. Simon notices the possibility of the first being the result of alcoholic excess without any suspicion of the truth being aroused in the mind of the attending practitioner. In the first case of paralysis of this kind which I saw, some good while passed before I had any notion of the latent cause, and of course effective measures under such circumstances were impossible. I shall now proceed to relate a few cases which have occurred in my experience, or that of others, and shall conclude with some general remarks. As it was maintained by one of the speakers in the discussion that the occurrence of epileptiform attacks in connection with

habitual alcoholic excess is commonly known, I have thought it better—though not holding the same opinion—to omit any cases, and to confine myself to the remark that chronic alcoholism is a very possible cause of epileptic seizures, and that in delirium tremens these may constitute a very alarming complication.

I now proceed to adduce some instances more or less marked of paralysis produced as I think by alcoholic excess.

CASE I.—Miss L., age 42 (about), seen December 2nd, 1864. Is naturally possessed of a good deal of ability and cleverness. Has been ill fourteen days after some exposure to cold (as was said); her symptoms came on gradually; she first felt stiffness and shooting in the knees. At present she complains especially of severe pain in the fingers and toes, which is aggravated by hanging them down; the pain is like pins and needles, as if the parts were asleep; they feel to her numb and swollen, but there is no appearance of swelling about them. No pain is felt above the wrist unless she stretches the arm out, when it becomes severe in the elbow. In the lower limbs the pain extends above the ankles to the knees. Gets no sleep at night from pain in hands and feet. No pain or tenderness in any part of spine. No pain in head except some about eyes and forehead. If she attempts to stand, she feels as if a heavy weight were fastened to each foot; she totters and can scarcely walk. Her arms also feel very weak. No palsy of sphincters. Is delirious at times, but not the last day or two. Her memory was weak. The expression of her countenance was dull and brutalised. The urine was deep coloured, alkaline, sp. gr. 1.024, deposited lithates and phosphates, was not albuminous, did not darken at all in colour when boiled with one-fourth its volume of nitric acid. Tongue over red. Bowels open. Is not thirsty. Pulse about 100, small, not weak. Pupils rather large. Perspires but little. Has been taking food pretty well until she took to her bed two days ago. Has certainly been taking, for a considerable time, too much liquor, probably gin. She continued under my observation until March 12th, when my report runs: Mental and moral faculties much deteriorated, she has become indolent, will not exert herself, has lost her memory, resorts to dishonest means to get gin (money being withheld from her),

but she is able to go out and take walks, and she slept fairly with a small dose of morphia. The pain formerly felt in flexing and extending hands had ceased. She had been treated chiefly with quinine and other tonics besides morphia. This was a very sad case; there can be no doubt that a naturally clever, well-conducted, capable, I might say talented female, was utterly degraded and ruined by succumbing to the fatal craving for stimulants induced by the debility and anxiety, the bodily and mental strain, which her condition in life rendered unavoidable. It will be observed that the symptoms in this case tended strongly in the direction of paralysis. Sensory, motor, and intellectual centres were all more or less gravely affected. The nutrition of the nervous tissue must undoubtedly have been impaired, but whether the change had gone so far as to produce demonstrable lesion seems to me doubtful; whether this, however, had actually occurred or not, it was certainly imminent.

CASE II.—Mrs. H., aged 25–30, seen April 1870. I was requested to see her and visit her occasionally for a medical friend, a man of large experience, who informed me that the case was one of rheumatic fever. Probably in its earlier period, while he was attending, the resemblance of the affection to this malady had been very strong, as another case I shall relate shows pretty clearly. She had long been in the habit of taking spirits in great excess, and food in very small quantity. I found her lying in bed apparently free from cerebral disorders, rational and intelligent, but with complete paralysis of her feet and hands. The toes were pointed, the anterior tibial muscles yielding to the passive contraction of those on the posterior aspect. She complained bitterly of the pain she experienced in her feet, screamed if they were touched, and had them constantly wrapped up in flannels or poultices. Yet there was no trace of inflammation of the feet; the ankle-joints were free and mobile; and it was quite evident that the condition was one of hyperæsthesia, probably the result of central disorder. Her powerless hands were numb, but not in nearly so much pain as the feet. Her nights were sleepless from the suffering her feet caused her, and she kept the household disturbed by her cries. No pain was felt in the back, nor was there any tenderness on pressure. Her abdomen fell in during inspiration; the diaphragm

seemed to contract imperfectly. She could hardly be got to take any food, but called urgently for stimulants, and screamed vehemently if they were withheld from her. Her axillary temperature was 37·4 (99·3), in the first cleft of right foot 33·7 (92·6). A week or ten days later the report is:—Her feet itch and tingle, and are very hyperæsthetic, so that even slight pressure causes pain; the soles of the feet are most painful, and feel to her just as if they were resting on hot cinders; cold wet rags applied to them are grateful. The feet as well as the hands are quite powerless; she cannot move the toes at all. Pulse about 110. Urine acid, high-coloured, clear, not albuminous; contains rather a small quantity of uric acid. Some relief was obtained by the administration of morphia and opium, but I found it impossible to break off her pernicious habits, and so she soon passed from under my observation. She remained, however, in much the same state until her death, August 28, her feet and hands, however, becoming œdematous. My notes do not affirm the integrity of the sphincters, but I am almost certain that their function was not disordered.

My diagnosis of this case was at first sclerosis or chronic myelitis of the cord; the palsy, the numbness, the pains and the hyperæsthesia seemed to be natural results of such a morbid process. Yet subsequently doubts have arisen in my mind as to the correctness of this view; and having regard to the absence of cerebral disorder, which the patient's habits were so well fitted to have induced, I have felt inclined to the opinion that the cord was affected much in the same way as the brain is in delirium tremens, and that, could it have been examined after death, it would have been found shrunken, pale, and œdematous. But the valuable observations of Dr. Lockhart Clarke, on the cord of another patient—to be presently mentioned—seem to me to afford material ground for believing that my original opinion was essentially correct. I should be glad to have retained the second view as affording more hope of recovery than the first.

CASE III.—Mrs. A. T., aged 55, had been more than fifteen years in the habit of indulging largely in alcoholic drinks, chiefly ale and brandy: spirits made her much excited and quarrelsome, and these or either of them she took in excess

almost daily. There was never an approach to delirium tremens, in any form that I am aware of, and the hands were not tremulous. As a matter of course the appetite failed by degrees, sickness was constantly complained of in the morning, and for four or five years before her death she really took a daily quantity of food so small as to prove completely that a tolerable degree of strength and an endurable state of health may be maintained for a period on malt liquor and spirit. Her food principally consisted of savoury things, like bacon, cheese, fish, pork, and biscuits. On January 1st, 1867, she was found at 7 A.M. stupidly drunk, lying on the floor-cloth in a room where she had been last seen about eleven the previous evening; there she had spent an entire night, which happened to have been one of unusually intense frost; in falling from her chair she had fractured the left tibia some three inches above the ankle. This necessitated her remaining in bed some weeks, after which she found the left leg first, and after a couple of months the right so weak that she was unable to walk without a chair or crutches; there was no complaint of persistent pain or abnormal sensation of any kind; occasional pain was experienced in the leg and foot which may or may not have been gouty. From this time she took or could get less stimulus, but a very little overpowered her. Friction, nervine tonics, cold bathing, &c. seemed to do a little good, but the loss of power gradually increased, the paralysis creeping up the legs, until she became bedridden; the legs could be moved up to within a few weeks of her death, but were utterly unable to support her. Galvanism caused the usual sensations but feebly, and the muscles contracted languidly or not at all under the stimulus. In the early months of 1870, the arms began to lose power; when seen in May, the right arm was the weakest; during June the paralysis progressed in both arms, the fingers being the last part of the upper extremity paralysed. The sphincters lost their power by degrees, the speech became thick and inarticulate, deglutition difficult, and she died July 4th in a state of unconsciousness. No bed-sores existed. The paralytic condition thus extended over a period of three and a half years, being steadily progressive, but not presenting the phenomena of locomotor ataxy.

The absence of cerebral disorder in this case was remarkable,

as the conditions were certainly very favourable to the occurrence of delirium tremens. It is noteworthy that the palsy seems to have pursued an inverse course in the legs and arms, ascending in the first, descending in the second. Ultimately the morbid action must have involved the articulatory centres in the medulla oblongata, and perhaps finally the brain as she died in a state of unconsciousness. (This case was communicated to me by Dr. Palmer.)

CASE IV.—M. P., aged 42, widow; February 3, 1871. Had typhus fever at æt. 17. Has been in good health since up to five weeks ago, when she began to feel pains all over her. Thinks she brought on her illness by sleeping in an underground kitchen. Seems to have rheumatic fever; complains of pain, chiefly in her back, legs, and arms; there is but little swelling. Gets but little sleep. Tongue red, and covered with patches of white fur. Has cough and dry râles in chest. Urine high-coloured. Bowels opened twice to-day (4th) by podophyllin gr. $\frac{1}{2}$, extr. colch. acet. gr. ij, extr. coloc. co. gr. ij, extr. cannabis Ind. gr. $\frac{1}{2}$ in pil. Has had a few doses of pot. bromidi gr. x, potass. bicarb. $\bar{3}$ j, aq. $\bar{3}$ iiss, 3tiis horis. Is now to take quin. disulph. gr. v, acidi hydrochl. dil. \mathcal{M} v, spt. chlorof. \mathcal{M} x, aq. pimentæ $\bar{3}$ j, quater die.

5th.—Pulse 93, weak; temperature 39.4 (103°); spits up greenish mucus. Slept some time in night after liq. opii sedat. \mathcal{M} x, subcut.

7th.—Has been getting decidedly worse in some respects the last few days; she has less pain and rheumatism, but the left leg is decidedly larger than the right, especially at the joints; there is also great anæsthesia of the surface all the way from the feet to the upper part of the chest. The lower extremities are rather more insensible than the upper; the only part which has good sensibility is the skin of the face. The anæsthesia in some parts is so considerable that a pin can be pushed pretty deeply into the skin without her feeling it at all. She complains of pain in the back, about the upper lumbar and lower dorsal regions, not increased by percussion. All her evacuations are passed in bed unconsciously, but this is not from coma. Surface of chest pits on pressure. Mucous crepitations are heard in the right back, and râles of finer quality in the left; loud mucous

râles are heard at front of chest. Her former medical attendant states that she has been very intemperate.

9th.—Rheumatism but slight now; temperature 39° ($102^{\circ}2$). Taking since 8th, ergotæ gr. vj, extr. bellad. gr. $\frac{1}{2}$ in pil. ij, ter die. Omit quinine to-day.

10th.—Has more sensibility in lower limbs, knows fairly well what part is touched, and can move her right foot pretty well and her left a little. The left thigh is not swelled, but the leg is a little. Urine alkaline, deposits granular, and prismatic phosphates.

15th.—Worse; marked tendency to bed-sores all over her; large sloughs have formed on both nates; a patch of dark blackish colour, evidently from effusion of blood, on each foot near the heel. Often has shivering, but does not feel cold at such times. Pulse extremely weak, 88; temperature $39^{\circ}4$ ($102^{\circ}9$). Temperature of first cleft of right toes, $36^{\circ}6$ ($97^{\circ}9$); of left, $37^{\circ}6$ ($97^{\circ}9$). Opii gr. $\frac{1}{2}$ ter die.

18th.—Is very low, pulse small and feeble; is injected daily at night with liq. opii. sed. to procure sleep. Prodigious sloughs have formed on both nates, and are separating slowly; the sores are dressed with tarred hemp. Opii gr. j ter die.

24th.—Opii gr. ij ter die.

25th.—Is decidedly better; not so low. Can move her hands better, but not her legs or feet. Takes fluid nourishment fairly. Sores look better; enormous sloughs are separating. Temperature 40° (104°). Pulse 108, very weak.

March 3rd.—Pulse extremely weak, only just countable; temperature $35^{\circ}6$ (96°). Her hands are cold, but she can move them freely; has "pins and needles" sensations in them, and cramps when they are cold. She can move her feet pretty well, and can tell which of them I touch. Since last evening she has got frequent vomiting, brings up a greenish yellow acid fluid. Her feet are œdematous, moderately warm; a small dark slough has formed on the left outer ankle. Strychnine gr. $\frac{1}{30}$, acidi nitrici ℥j, spt. æth. chlor. ℥x, aq. $\bar{3}$ ss, quater die.

4th.—Sickness ceased; pulse much more distinct; temperature 37° ($98^{\circ}6$).

7th.—Temperature $37^{\circ}2$ ($98^{\circ}9$). Thirsty; no sickness; all evacuations passed in bed, but not unconsciously; pulse ex-

tremely weak. Very slight reflex movements produced by tickling the soles of the feet. Is taking since 6th, opii gr. j. 4tis horis; omit strychnine.

10th.—Much sickness yesterday, which continues, though strychnine has been resumed and she has champagne. Enormous sloughs on both nates and hips; that on the left has formed a frightfully large and deep cavity. Pulse very small and feeble. She is rational and conscious; can use her hands to feed herself. Died about noon on 13th. She was quite sensible during most part of her stay in the hospital, though for some days at first she was stuporous. She was quite conscious two hours before death; felt the agony which her bed-sores caused her extremely. About one hour before death she lost all visual power, but even then was conscious. Some days before her death a large bruise-like patch was observed above left knee, and a few days later two black bullæ appeared—one on the right thigh; the other, smaller, about the size of a half-crown, below the left knee. Patches of inflammation occurred at various parts where there was no, or only very slight, pressure.

P. M.—*Autopsy twenty-two hours after death.*—Body thin. Frightful sloughs on the back, that in the middle quite exposing the sacrum, and burrowing deeply among the muscles of the back; another in each thigh among the muscles of the outer part of the limb. That in the middle was nearly a foot broad; the surrounding parts were inflamed, cedematous, and partly gangrenous. Some rigor mortis. Spine opened first. Spinal dura mater tense with fluid; more congestion of surrounding veins in lower than in upper part of canal. In the lumbar region the canal contained a good deal of fatty tissue. The two layers of the arachnoid (spinal) were everywhere adherent more or less; the adhesions were not very recent. The cord looked small in all its extent. The lumbar swelling was quite pulpy; it was injured by the scissors in opening the dura mater. The skull was very thick and heavy; the diploë obliterated. The dura mater was natural. There was some liquid blood in the sinuses. The convolutions were somewhat flattened. The vessels of the pia mater were not injected. The right frontal lobe was larger than the left. Ventricles much dilated by clear fluid free from flocculi of lymph; lining membrane of ventricles thick and tough, and

veins ramifying on it congested. Septum lucidum much wasted. At the base the locus perforatus posticus was as thin as paper, and readily gave way. The brain was soft, as well as the cerebellum, but its structure appeared healthy. Encephalon separated from cord weighed 47 oz. Lungs very pale, emphysematous, doughy. Heart natural, valves sound; the blood in the right ventricle contained air-bubbles. Heart weighed 12 oz. Liver was large, weighed 92 oz.; showed no trace of cirrhosis, only some fatty change of the cells at the margin of the lobules. Spleen natural. Kidneys each weighed $6\frac{1}{2}$ oz., capsule too adherent; structure seemed healthy; medullary tubes were many of them infarcted very much with opaque yellowish granules; the cortical tubes had often rather wide canals and rather wasted epithelium, but were fairly healthy. No sign of decomposition.

Dr. Lockhart Clarke has been so good as to examine the cord for me, and the following is his report:—"The lower end of the spinal cord and the whole of the lumbar enlargement were nearly in a healthy state; but immediately above this enlargement, at the lower end of the dorsal region for about one inch in length, the posterior white columns to nearly a third of their depth, and the posterior parts of the lateral columns, were very much softened. The grey substance was not much altered in structure, except at one particular level on the right side, where the anterior cornu was also softened. Above this portion of the cord for a distance of about two inches, the white columns—especially the posterior—were much congested, but retained their natural consistence, except along the borders of the posterior lateral fissures, where the posterior columns on one side, and the lateral columns on the other, together with the nerve-roots contained in the fissures, had suffered at certain spots complete granular disintegration, with production of numerous oil-globules. The grey substance was strangely altered in shape, and closely resembled the form of that substance in *Mammalia* at the corresponding part; for the two posterior cornua with the vesicular columns at their bases were brought nearly together at the median line." Dr. L. Clarke has met with a similar alteration in the shape of the grey substance in a remarkable case of muscular atrophy, which he has described and figured in Beale's Archives, xiii. 1863. On each side the base of the anterior cornu, in-

cluding the tractus intermedio-lateralis, was to some extent softened and disintegrated. In the middle and upper portions of the dorsal region both the grey and white substances were in many places congested, but not otherwise altered to any appreciable extent. At the lower part of the cervical enlargement on the right side there was a long and large area of softening in the anterior cornu and base of the posterior cornu. This extended up the cord for about half an inch; and on a level with its upper end some softening with several patches of granular disintegration were found in the centre of the left anterior cornu, extending, however, only a few lines upwards. The pia mater at the surface of the cord, and its prolongations between the principal fissures of the white columns, were much thickened and congested.

The middle portion of the cervical enlargement was affected in a few places only by granular disintegration of the anterior cornua, and a moderate degree of congestion; but at the upper part of the cervical region, beginning between the third and fourth pair of nerves, both the anterior and posterior cornua were severely damaged. The white columns were intensely congested, and their principal fissures contained large prolongations of thickened and congested pia mater.

At the second pair of cervical nerves the anterior cornua were either a little or not at all affected; but the base and cervix of the posterior cornu on the right side were much damaged by softening and disintegration. At the lower part of the first pair of nerves the anterior commissure also was broken down and contained distended blood-vessels. The whole of the medulla oblongata and pons Varolii were in a healthy state.

The changes found in this patient's cord are pretty evidently of the same nature as those described by Dr. Lockhart Clarke in his paper on Tetanus, "*Med.-Chir. Trans.*" 1865, where he states that the lesions of structure have their origin in a morbid condition of the blood-vessels resulting in exudations with impairment of the nutritive process. He describes the changes, which he designates as granular and fluid disintegration, as consisting in a decay and breaking up of the white substance of Schwann belonging to the nerve fibres in the affected areas. The separated fragments of the medullary sheaths are reduced

to finer particles and mingle with the granules of the exuded fluid. By a continuation of the same process the substance becomes reduced to a perfectly fluid state. A large area of fluid degeneration may be formed by the gradual enlargement of one, or the coalescence of several isolated spots.

The morbid process, judging from the history of the case, extended over ten or eleven weeks. It was therefore of a subacute kind, and, as the autopsy shows, did not give rise to granule or pus-cells, or other products of severe inflammation. The earliest symptoms—the pains in the back and limbs and all over her, and the quasi-rheumatic affection—were, in all probability, the results of irritation and hyperæmia of the spinal cord, set up, as we may suppose, by alcohol in the blood. Soon after her entrance into the hospital the process became aggravated, and perhaps at that time extended to the lining membrane of the ventricles. Supposing this to be the case, and that effusion then took place, we should have an adequate explanation of the stupor and anæsthesia. The subsequent diminution of these symptoms might depend on lessening of the effusion, or of the morbid action which produced it. It is very noteworthy that the encephalon weighed very nearly, if not quite, as much as is normal for the female; so that the presumption is decidedly against its having undergone atrophy. The high temperature may be accounted for on the supposition, which Dr. Lockhart Clarke's examination seems to confirm, that the regulating centres were paralysed by the morbid action. At the level of the third and fourth pairs of cervical nerves both the anterior and posterior cornua were severely damaged; and we know, from recorded cases, that injury to the cervical cord in this region is capable of giving rise to high temperature. Whether the lesions of the cord by themselves were sufficient to give rise to the paralysis and the sloughing, or whether the ventricular effusion contributed to the result, I cannot decide. Some may question whether alcohol was the *causa mali* in this case, and there is no doubt that similar mischief may occur in temperate persons as in children; but it is probable enough that alcohol, which is known to act specially on nervous tissue, and which was taken to excess in this instance, was really the chief motor of the morbid action. This view is confirmed by the presence, in this

instance, of two remarkable changes noted by Lancereaux as ordinary results of chronic alcoholism, viz. condensation of the cranial bones and hypertrophy of the liver.

CASE V.—A. B., age 60 (about), came under the care of a medical friend, suffering with paraplegia, which had been coming on for several years, but now had become so bad that he could not stand, and had to be constantly attended to. He had power over the rectum and bladder until latterly, when the urine dribbled away. He was thin, tall, and of an excitable temperament. He had been a free liver, and would take at times a large quantity of spirits, sometimes brandy, at others wine, &c. Some days he would take nearly a pint and more of brandy, then for a few days very little. However much spirit the patient took, his head always appeared clear. He seemed to be more irritable when he abstained from brandy. At times there was vomiting, which led many of those who saw him professionally to regard the case as one of cancer of the stomach. As he drew near to his end, he became less anxious than ever to live, and could with difficulty be induced to take food.

An autopsy was made two days after death, the spinal cord being removed first, and carefully examined after it had been hardened in chromic acid. On opening the spine a fair quantity of fluid was found contained within the coverings of the cord. The cord itself was smaller than usual, and in the dorsal and lumbar regions it was very soft. Transverse sections examined subsequently showed degeneration of the posterior columns, and softening more especially in the dorsal region. The internal organs presented nothing unusual except that there was atheromatous deposit in the arch of the aorta, and some calcification of the aortic valves.

In this case the alcoholism seems to have attracted little notice, although the vomiting was so severe as to have led the patient to consult several eminent men, and probably caused death by exhaustion. I cannot see any more reasonable view than that the alcohol produced chronic inflammation of the stomach and cord, and so gave rise to the vomiting and palsy.

The absence of delirium in all these five cases, taken together with the prominence of spinal cord symptoms, seems to me specially noteworthy. The patients were in those conditions

precisely which ordinarily give rise to cerebral derangement, and yet this was almost entirely wanting. If this fact be well considered, it seems to add very much to the probability that the paraplegia was really of alcoholic origin. For if we reject this view we must suppose that though alcohol was taken in excessive, in toxic quantities; though the supply of nourishing food was certainly in three, and not improbably in the others, insufficient to stave off its injurious effects; though alcohol is known to have a special tendency to affect nervous tissue injuriously; and though nervous tissue was actually injured, yet this result had no relation to the alcohol, which in fact remained inoperative. This seems to me too much to admit. That a drug which usually acts on one locality may occasionally leave that part unaffected, and concentrate its action on another, is proved by the similar case of opium, which sometimes passes by the hemispheres and paralyzes the cardiac nerve-centres. That alcohol may sometimes even in acute intoxication affect the lower spinal centres more than the cerebral, is shown by a story related to me of a drunkard, who would ask to be assisted in getting home, for his legs were so very drunk.

The severity of the bed-sores in Case IV., contrasts remarkably with their entire absence in Case III. I am disposed to attribute this difference in great part to the much more rapid course of the malady in the former of these instances, though much also may depend on individual peculiarity, one frame being more vulnerable than another.

Particular attention should be directed to the deceptive resemblance, in two of the instances I have recorded, of the earlier phenomena to acute rheumatism. This is not, I believe, at all unusual, and it is evidently of much importance that we should be on our guard against committing this error. Brown-Séquard has given the same caution with respect to chronic myelitis and its rheumatoid remote pains. Probably the idea that rheumatic fever is essentially dependent on spinal hyperæmia had its origin in the observation of cases such as I have just alluded to.

It can hardly be necessary to say that I claim no large rôle for alcoholic excess in the causation of paraplegia. In most cases of chronic alcoholism the symptoms are chiefly cerebral, and yet

even in these the muscular tremors seem rather to belong to the spinal cord than to the higher centres. Again, it is but seldom that paraplegia will not be found to acknowledge some other cause than alcohol. But that in some instances the co-existence of alcoholism and paralysis is not merely accidental I entertain very little doubt, and I advise practitioners not to exclude too lightly this influence from their list of possible causes.

The only effective treatment of such conditions as these requires of course the withdrawal of the noxious agent ; and the administration of such remedies as may improve the nutrition of nervous tissue, among which may be mentioned cod-oil, hypophosphites, strychnine. Yet more important, however, is restoring the functional power of the irritated and half-inflamed stomach, so that a due quantity of nourishing food may be taken and digested. These things being done, and done persistently, recovery is possible, unless, indeed, we have to say sorrowfully as the little maid to Guinevere—"Late, late, too late."

CASES OF PARALYSIS OF OCULAR MUSCLES TREATED WITH CALABAR BEAN.

BY T. WHARTON JONES, F.R.S.

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I. *Case of Paralysis of the Superior Oblique Muscle of the Left Eye treated by dropping a Solution of the Extract of Calabar Bean into the Eye.*

Samuel —, æt. 36, furrier, admitted January 4, 1871; is a married man and has always been healthy.

On the 26th of December, when very tipsy, fell down in the street and hit the region of the eyebrow and upper eyelid of the left side on a door-step. The eyelid near the inner canthus was cut, but there was very little bleeding.

Two days after the accident, I found the upper eyelid much swollen and the ocular conjunctiva the seat of ecchymosis. The patient said that the swelling of the upper eyelid was much less than it had been.

The swelling of the eyelid quickly subsided, and the extravasated blood in the conjunctiva disappeared; the eye now admitted of being freely opened.

After this the patient complained that objects appeared to him double, one image above the other.

On examination of the eyes in reference to this symptom it was found that the general movements of each appeared at first glance perfect; but on watching more closely while he looked at a finger held up before him, it was seen that the right eye moved a little more downwards and inwards than the left.

Looking at objects above the plane of the horizon, he sees them

single, and also objects placed to his extreme left or right. On looking at the finger held before him below the plane of the horizon, he sees it double—one image above the other. He sees double more to his right hand than to his left. The image seen by the left eye is below that seen by the right, except when his head is bent over either shoulder, and then the two images become parallel. As he brings his head back into the straight position, the images gradually come to appear one above the other as before.

When first seen, the patient was ordered three grains of blue pill and a grain of extract of colchicum, after which the swelling of the eyelid subsided and the conjunctival ecchymosis disappeared.

When he began to complain of the diplopia, a blister was applied over the left temple; and on the 6th of January, mist. hydrarg. iodid. ζj , three times a day, was prescribed.

January 11th.—The double vision continues as before, and the patient complains of feeling giddy.

18th.—This day a piece of moist extract of Calabar bean of the size of half a small barleycorn was diffused in a little water and dropped into the left eye. By the action of this application the pupil became contracted in the usual time; all other medication was omitted.

20th.—Application of the Calabar bean repeated.

23rd.—The patient affirms that the double vision does not disturb him so much as before. Calabar bean repeated.

25th.—Sees double only when he looks straight down at an object, and the two images are not so far apart as before. In other positions he sees objects single. Calabar bean drops again applied.

27th.—The application repeated.

30th.—The patient affirms that the two images seen on looking straight down at an object are nearer each other. The Calabar bean drops repeated.

February 1st.—Calabar bean drop repeated.

3rd.—Improvement continues. Calabar bean drop repeated.

6th.—The stomach and bowels disturbed. To take a pill composed of pil. hydr. gr. ij , ext. colchici gr. j , ext. hyosc. gr. ij . Calabar bean drop repeated.

8th.—Says that he experiences the double vision only when he attempts to read. In looking about he sees everything single, so that he has ceased to wear the shade over his left eye. Repeated the Calabar bean drop.

10th.—The patient's report to-day is that he sees single at every distance and in every direction, except when he attempts to read. In this case the line is seen double, one image below the other. Repeated the application of the Calabar bean drop.

13th.—Sees single at all distances until he brings the object within a yard's distance, when two images are seen, one above the other. The distance between the two images increases in proportion as he brings the object nearer. Repeated the application of the Calabar bean.

15th.—Repeated the application of the Calabar bean.

17th.—Can now read at the distance of two feet without seeing double. Calabar bean repeated.

20th.—Is now able to read at a still shorter distance without seeing double than at last report. The application of Calabar bean repeated.

22nd.—Can now read at the distance of about ten or twelve inches without seeing double, but he cannot continue more than a minute or two before the double vision comes on. The application of the Calabar bean repeated.

24th.—Much the same. The application of the Calabar bean repeated.

27th.—Sees single on beginning to read, but in a minute or two the double vision comes on. The application of Calabar bean repeated.

March 1st.—Still sees double after a minute or two's reading. The application of Calabar bean repeated.

3rd.—Continues the same.

6th.—The same. Sees the lines in reading quite distinctly single, but after a minute or two one line appears below the other. Continue.

8th.—The two last nights has seen double at some distance in the ward; but now the double vision only comes on after reading a minute or two. Continue.

10th.—Can read somewhat longer without the diplopy coming

on. Repeat Calabar bean. To become an out-patient ; to take quinine and iron mixture.

13th.—Thinks the sight better since becoming an out-patient. Continue the quinine and iron. No application of the Calabar bean made to-day.

20th.—Can read longer, and, when his eyes are shaded from the light, can see to do his work as a furrier. Application of Calabar bean repeated.

The patient now ceased attending the hospital, but on inquiry being made some time after by Mr. West (who took down the above report), it was ascertained that he was quite well.

II. Case of Paralysis of the Third Nerve treated by dropping Solution of Extract of Calabar Bean into the Eye.

An old lady aged 67 came under my care on the 4th of September, 1871, with paralysis of the third nerve, right side. There was ptosis to such a degree that the eye was covered. On raising the upper lid with my finger, it was found that the patient could not turn the eyeball inwards, upwards, or downwards, and that she saw objects double. The pupil was in the middle state.

Before consulting me the patient had suffered severe pains in the head ; after which it was that the drooping of the eyelid came on.

Dropped a solution of the extract of Calabar bean into the eye, and ascertained that it had taken effect on the pupil before the patient left.

September 8th.—To-day the upper eyelid is so much raised that the patient sees with the eye, and is therefore so troubled with the double vision that she has to keep the affected eye covered. Repeated the Calabar bean drop.

11th.—Can raise the eyelid still more, and can turn the eyeball more inwards. Still diplopy, of course. Repeated the Calabar bean drop.

15th.—Improvement continues. Repeated the Calabar bean drop.

18th.—Repeated the Calabar bean drop.

22nd.—Repeated the Calabar bean drop.

29th.—Opens the eye now quite wide. Sees single on looking down, but double on looking up ; apparently owing to the in-

ferior oblique muscle not having yet fully recovered its power. Repeated the Calabar bean drop.

October 4th.—Sees double only sometimes now on looking down, and to the right, and that very slightly, the two images being close together. The right eyelid is well raised, but not yet so fully as the left. The right pupil contracts under the action of the light, though not so actively as the left. Can read, with both eyes open, comfortably and distinctly the smallest print with her spectacles (14 inches convex). In walking about has still to keep the right eye covered, to prevent giddiness coming on. Repeated the Calabar bean drop.

6th.—Still sees double sometimes on looking down and to the right. Reads the smallest print with her glasses, and although looking down does not see double. Has still to keep the right eye covered when walking. Repeated the Calabar bean drop.

9th.—On looking down and to the right is still liable to see a shade by the side of the object. Repeated the Calabar bean drop.

20th.—Upper eyelid freely opened, and no perceptible deviation of the eyeball. Sees the shadow by the side of the object only after looking at it for a while. Repeated the Calabar bean drop.

27th.—Thinks the right eye now in some respects stronger than the left. The shadow appears only after the eye is tired looking at an object. Repeated the Calabar bean drop.

30th.—Reads with her spectacles for a long time without any confusion. The shade of diplopy less and less every morning. Repeated the Calabar bean drop.

November 3rd.—Repeated the drop.

10th.—Is now able to do without the shade over the right eye. Repeated the Calabar bean drop.

17th.—Double vision quite gone. Repeated the Calabar bean drop.—Dismissed cured.

ON CHRONIC CHLOROFORM NARCOSIS.

BY DR. ANSTIE.

A CHANCE question from a medical friend, a few days back, has suggested to me the idea that there is probably some ignorance in the profession of certain facts which it is very important that medical men should understand and, when necessary, impress upon their patients and the public generally. This friend of mine asked me, whether the constant use of large doses of chloroform, for the purpose of relieving pain, might not possibly bring about, in the end, a degraded condition of the nervous centres analogous to that induced by chronic alcoholic excess, with the result, in some cases, of actually increasing the tendency to pain?

I unhesitatingly said "yes," and was for a moment surprised that the question should have been asked. Very little reflection is necessary, however, to convince one that practitioners whose attention has not been specially called to the comparative actions of the various narcotics (and particularly their chronic actions) would possess scarcely any clue to guide them to the facts which will be considered in this paper.

One needs to be for ever repeating what is constantly forgotten, that alcohol and chloroform are strictly analogous with each other, though different, in nearly all the phases of their action. Sulphuric ether is similarly analogous to both. They are all three pure *stimulants* (*i.e.* restorers of calm natural function) in small doses, *incbriants* when given in larger quantities, and *anæsthetic narcotics* in full doses. The most important peculiarity of chloroform, as compared with alcohol especially, is the fact that its great insolubility in the serum of the blood

causes it to escape entirely, or almost entirely, from the lungs within a very short time (one hour?) after its administration, and without undergoing decomposition in the body. As a result of this latter fact, chloroform, however dangerous at the moment of surgical narcotisation, is exceedingly free from tendencies to produce after-mischief, since the organism is speedily rid of its presence.

Unfortunately, the knowledge of this latter familiar fact has led to unwarrantable inferences as to the effects of a kind of chloroform administration which is radically different from the ordinary induction of surgical anæsthesia. There are a multitude of sufferers from chronic painful diseases who have got upon a wrong groove in this matter. Either because they have not tried the proper remedies for the relief of pain, or because these remedies have failed to do good, they have taken to the practice of narcotising themselves with chloroform (which is so easily done, and so completely effects their purpose at the moment) on every occasion when their sufferings rise to any considerable intensity. One meets with numerous cases of chronic neuralgia and other pains that more or less vaguely resemble neuralgia, and of chronic spasmodic affections, like asthma, in which the patient has got into the habit of using two, three, or four ounces of chloroform every day, and sometimes even much larger quantities. A bottle of chloroform is kept close at hand, and a teaspoonful or so (sometimes much more) is poured upon a handkerchief and inhaled: this is repeated an indefinite number of times in the twenty-four hours, according to the promptings of pain or other nervous distress.

Now I shall not dwell upon one obvious danger of such a practice, which has, however, been exemplified by several catastrophes which both the public and the profession seem to have too soon forgotten—I mean the danger of fatal chloroform narcosis from this exceedingly rough and unskilful tampering with a potent narcotic. Apart from any such sudden and fatal mischief, I wish to show that the practice of constant and protracted dosing with chloroform can lead to chronic mischief, less in degree no doubt, but essentially similar in kind, to that which is produced by long-continued alcoholic excess.

The case which immediately provoked my friend's query as to

the possibility of chronic narcotism from habitual large use of chloroform, was one in which severe pains in the two lower limbs, dependent as I believe on chronic sub-inflammatory mischief in the membranes of the spinal cord, had become complicated with outbursts of semi-maniacal excitement; and it was this symptom which mainly led to his inquiry. It had at first been set down to be either a mere secondary effect of the pain, or else a part of the excitement directly resulting from the disturbance produced by involution processes in the uterus occurring at the grand climacteric. Without deciding, absolutely, whether the latter circumstance may or may not have had some share in bringing about the mental disturbance, I can at any rate say that I have seen the same phenomena produced, in connection with the excessive and continued use of chloroform, where there was no room for suspicion of any uterine source of the mischief, or indeed of any other source except the narcotic itself. A good instance of this occurred to me some years ago, at a time when I was endeavouring to see if any good could be effected in epilepsy by stopping every convulsion at once by chloroform inhalation. Where one could superintend the administration oneself, or commit it to persons who were thoroughly trustworthy, the effects were at least harmless: only an exceedingly weak atmosphere of chloroform was administered, for one or two minutes; the fit was stopped, but the patient could scarcely be said to be narcotised at all. But the difficulty, in delegating the administration to nurses or friends of patients, was to prevent the unnecessary induction of positive and somewhat profound narcosis. In one such instance, a girl of 19 (whose attacks were undoubtedly true epilepsy, and not hysteria) required the administration of chloroform four or five times every day, as that was the frequency of the fits; unfortunately the person who gave it could never be satisfied without sending the patient into a somewhat profound narcosis. At the end of sixteen or seventeen days of this treatment it was evident to me that something was going wrong, from a look of excitability and restlessness which the patient exhibited; still there was nothing very positive to lay hold of till about a fortnight later. I was then sent for one evening in a great hurry, and found the girl in a state of peculiar excitement, which really deserved the name

of maniacal. She had torn her clothes, struck her attendants, and abused every one around her with much violence and gesticulation. At first I was inclined to think that this was only an instance of *furor epilepticus*; but as it recurred several days in succession, and always as the climax to several repetitions of the chloroform-inhalation administered to stop fits, I began to suspect the possibility that the chloroform itself was to blame. I therefore at once and completely withdrew the use of it, and all mental excitement immediately subsided. It would not have been surprising if the fits had now recurred with increased severity; but as a matter of fact, during the three or four months in which I still had the patient under my care, they never exceeded, and very seldom came up to, the frequency with which they used to recur before the chloroform treatment had been adopted at all.

Another consequence, not unfrequently observed, of the profuse and continued employment of chloroform, is the disposition to recurrent vomiting. The patient sometimes begins by losing all appetite; but this is not always the case. Most commonly the tendency to sickness shows itself in a disposition to retch, or actually vomit, after awakening from a heavy semi-comatose sleep: but the vomiting sometimes becomes frequent, as the case proceeds, and greatly prostrates the strength. Entire intermission of the use of chloroform then becomes an absolute necessity, and the sickness usually subsides quickly.

Another phenomenon, which strikingly recalls the condition of chronic alcoholic patients, is an intense insomnia which is occasionally observed as a result of long-continued and copious use of chloroform. This was well illustrated in a neuralgic patient, aged 61, who came under my care after many years of suffering from his malady. He was desperate from disappointment caused by the failure of a great number of remedies, the case being one of that intractable type which is so frequent in the neuralgias of later life; he had taken to the free and indeed reckless use of chloroform with the sole object of getting momentary relief from the agony of his dreadful seizures. For many weeks before he came under my care, he had scarcely ever slept naturally for more than a few minutes at a time; and what little slumber he got was disturbed by frightful dreams. Chloroform was at once peremptorily interdicted, and the careful employment of hypo-

dermic injections of morphia soon procured a great relief to his sufferings, and also enabled him to get several sleeps, of an hour or more duration, in each twenty-four hours. The case was not susceptible of cure, but even this amount of amelioration was a very important benefit.

The worst results that I have ever seen from prolonged abuse of chloroform have been witnessed in cases of "spinal irritation" of the truly hysteric type. I wish to be clearly understood as to the class of cases here referred to: for it is not every case of spinal irritation (*i.e.* of anomalous pains and disturbance of viscera, connected with the presence of isolated acutely tender spots in the spine) that deserves the name of "hysterical." I am now speaking of cases in which the above-named phenomena of spinal irritation are conjoined with *globus*, with hysteric convulsion, hysterical anæsthesia, and the occasional occurrence of sudden discharges of a large quantity of pale, limpid urine. I can hardly speak too strongly of the mischief that I have seen caused by the reckless use of chloroform to quiet the sufferings of such patients: there is only one thing worse for them, and that is, that they should take (as they occasionally do) to drink. In the year 1865, I had a typical example of this kind of mischief from chloroform in the person of a patient of my own. She was a single lady, aged 41, the victim of complicated hysterical and spinal symptoms. There were persistent tender spinal spots, pressure on which produced very positive visceral disturbance; for instance, it was impossible to press for more than a few instants on a tender point in the upper dorsal region without provoking violent retching or actual vomiting. Besides this there were frequently recurring attacks, which now assumed the character of hysteric convulsion, now of hysteric catalepsy, and again of spasmodic rigidity of the lower extremities. In addition to these, the patient suffered greatly from so-called neuralgic pains, chiefly in the head, but also in various parts of the body: there was also marked skin tenderness over a considerable surface on the left side of the chest, and anæsthesia, scattered in distribution and varying in amount, of the skin of the lower extremities. To relieve the painful and convulsive symptoms chloroform had been freely, and indeed very lavishly, employed for a long period of time; and I had not long attended the

case before I perceived that the alleviation it caused was now extremely brief and slight, and suspected that the positive damage inflicted more than overweighed it. The entire and sudden suspension of the chloroform, the allowance of a moderate quantity of stimulants, and the use of *cannabis Indica* in half-grain doses of the extract twice a day, was followed by an immediate mitigation of all the worst symptoms, and especially of a tendency, that had been rapidly growing, towards maniacal derangement.

Sometimes the effect of prolonged and lavish use of chloroform on the class of subjects to whom we have just referred is even more mischievous. It has been known to take the form, especially in women who are at or near the menopause, of violent erotic excitement, to which no doubt there was a tendency resulting from the physiological state, but which was indefinitely aggravated by the injudicious use of chloroform; the proof being that it diminished, or even practically ceased, immediately that the drug was discontinued. I am sure that this is a serious matter, and one that requires to be most carefully borne in mind, considering the great tendency of women at the grand climacteric to seek relief from their distresses by the shortest and most effective method that may happen to present itself. Drink is the worst danger, but many a woman who would shrink from brandy would take to chloroform, because it seems to be only a medicine. The same remarks apply, more or less, to the periodic times all through the sexual life of women.

It is not merely, however, by such disturbances as those already described, that chloroform, when chronically abused, revenges itself on the organism. Slowly—much more slowly than is the case with alcohol—there are produced, in a certain number of instances, degenerative changes which accurately imitate the degradation of tissues produced by chronic drink: at least, such is my distinct belief. Although in circumstances of ordinary chloroform narcosis, induced for once for a definite surgical purpose, there seems no doubt that the whole of the anæsthetic completely leaves the organism by exhalation within an hour or two, it is probable that this is not the case where the patient is constantly saturated with the drug in frequent repetitions every day of his life. What the further chemistry of the

process is we cannot at present say : it is impossible to tell whether the chloroform does or does not become oxidised within the body, as alcohol certainly does. But of the positive character of the general vital result I think there can be little doubt : quite apart from the damage to appetite and digestion which accrues, there is apparently a visible increase in the rapidity of those degenerative changes which give the organism the characteristics of old age. It is a noteworthy fact that I have seen more than one instance in which the haggard countenance, grizzled hair, and general feebleness had been ascribed exclusively to the sufferings the patient had undergone ; whereas these appearances became diminished, or at any rate ceased to advance, on the mere discontinuance of chloroform which had been given with great frequency and in large amounts. Indeed my belief is that much greater damage would be done in this way than actually occurs were it not for the wasteful manner in which the chloroform is usually taken (handkerchief, towel, or the like), and which involves the escape of a large quantity that never gets breathed at all. In one instance (possibly because there was less of this waste) I saw an actual paraplegia occur, for which there seemed no reason in the nature of the patient's original complaint (spasmodic asthma). The prompt stoppage of chloroform inhalations diminished the paralysis, which, however, was never quite removed.

A word or two may be said on the subject of chloroform *drinking*. I am not aware that chloroform, as such, is consumed in any considerable quantity as a draught to relieve pain or other discomfort. But there is certainly a great deal of injudicious use of chloric ether for trivial nervous ailments ; and this practice is probably a good deal more common than that of the use of chloroform itself, either with or without medical sanction. Now "chloric ether," as every medical man knows, is simply alcoholic spirit impregnated with from 5 to 10 per cent. of chloroform. The effect produced is a compound of those of alcohol and of chloroform. I do not pretend to possess any authentic knowledge of the exact extent to which this kind of amateur medication is diffused ; but from facts which pretty often come under my notice it is difficult not to conclude that there is an increasing disposition among delicate and "nervous" persons to

avail themselves of the comfort imparted by this drug. And although it would not be so easy for people to take enough chloric ether to do themselves a serious mischief as it would be to accomplish such mischief by the use either of chloroform or of alcohol pure and simple, yet there is this danger, that chloric ether is far more likely (as a seemingly innocent preparation) to be taken frequently for slight nervous ailments. It certainly forms one of that class of household remedies, of which our forefathers knew nothing, but which in the present day are handled with increasing freedom by *soi-disant* invalids. I merely wish, here, to call the attention of medical men to the subject, and to ask them to be very cautious how they give any general recommendation of chloric ether as a remedy to be used for depression of spirits, "nervousness," and so forth. It is just the kind of remedy likely to be taken lavishly and thoughtlessly for such distress, more particularly, as women suffer at the menstrual period: and there ought to be no disguising the fact, that its use under such circumstances, without strict medical regulation and control, is likely to degenerate into a kind of tippling only a little less mischievous and degrading than ordinary alcoholic excess.

Reviews.

The Skim-Milk Treatment of Diabetes and Bright's Disease. By ARTHUR SCOTT DONKIN, M.D. Edinburgh, M.D. Durham, Lecturer in Medical Jurisprudence and Toxicology in the University of Durham, late Physician to the Sunderland Infirmary and Dispensary, &c. Small 8vo. pp. 317. London: Longmans.

DR. DONKIN is an enthusiast, and his enthusiasm has led him to select an arrangement of materials in his book which, we are bound to say, somewhat prejudiced us against it at first. He commences his work with three chapters, altogether devoted to the subject of skim-milk, and the milk treatment generally, with historical notices of its use by earlier physicians, and physiological discussions respecting its action on the human body. Further, it would appear, from his preface, that he has previously written papers in the journals in which he discussed its applicability to a variety of diseased conditions, of which Diabetes and Bright's disease were only the most important. Now it does not strike us exactly the most philosophical manner of proceeding that our author should discuss the remedy before discussing the disease to which it is to be applied. One would think that, in undertaking to say anything new about the treatment of such well-known and yet little understood diseases as Morbus Brightii and Diabetes, it would be the more rational plan to examine first the pathology of these maladies, so far as it has been explained (throwing any new light which the author might have discovered); next to give the practical facts as to the effect of the treatment which he advocates, and finally to endeavour to explain the physiological action of that treatment. We do not wish, however, to press the question of method unfairly; and we admit that Dr. Donkin appears not merely to be a sincere inquirer, but a clinical observer of no mean ability, and a reasoner of considerable ingenuity. There can be no doubt, moreover, that, if he be correct in his main positions, he has made an exceedingly important discovery.

We must first mention the subject of Diabetes, the author's theory of the disease, and his facts about its treatment. We

need not go over in detail the well-worn controversial ground that has been occupied by the principal theories of diabetic pathology current of late years. Our readers are sufficiently familiar with the various theories respecting the glycogenic function of the liver, the extent to which this is to be considered a truly vital function, and the extent to which the singular influence of the central nervous system (first demonstrated by Claude Bernard) on sugar-formation can be supposed to intervene as a factor of substantial importance in the production of pathological diabetes. Dr. Donkin's analysis of the various theories propounded is exceedingly careful and impartial, and up to a certain point seems to us to express a result (negative, it is true) that fairly represents the state of our knowledge on the question. We cannot speak as favourably of his acumen in dealing with the facts, brought forward more especially by Dr. Dickenson, which direct attention to the central nervous system as the probable seat of the primary changes of which diabetes is a mere consequence: on the contrary, Dr. Donkin's arguments here seem to be weak and trivial, and he shows a great deficiency in the kind of judgment which estimates the value of cumulative evidence. It is certainly not by such criticisms that pathologists will be induced to divert their attention from the most promising contribution of facts, towards the solution of the mystery of diabetes, that has yet been presented to our notice.

Far more weighty are the author's practical facts regarding the effects of the treatment he advocates. Unless his observations are totally inaccurate—and we have not the least ground for supposing it—he has shown, with remarkable clearness, that at any rate after a certain early stage in diabetes, fatty matter of all kinds becomes equally noxious with starch and sugar; and that milk, *thoroughly* skimmed, and given as the sole article of diet, fulfils better than anything else the rôle of a nourishing, thirst-quenching, but perfectly innocent aliment: the urinary sugar diminishing with a rapidity and a steadiness not to be observed under any other plan. The facts are of the highest importance, and ought to be widely tested by independent observers. One point, however, we think is scarcely touched on by Dr. Donkin: and that is, that in the earlier stages, when as yet no tendency has appeared for fatty food to increase the amount of urinary sugar, it is probable that such remedies as cod-liver oil are of the very highest importance: certainly we have found it so in our own experience, and we have even formed the opinion that this is almost an absolute necessity, if the tendency to phthisical complication is to be warded off. This is only one of several criticisms which it would be possible to make on our author's therapeutical views. But they well deserve the attention of the profession: and as regards the

advanced stages of the disease, it seems to us highly probable that in skim-milk we should find this practical advantage, that it is perhaps the only *simple and monotonous diet* which we should have a good chance of getting our patients to adhere to continuously for a lengthened period. At the same time we cannot help asking ourselves, what about possible *scorbutic* complications? It will certainly need a great deal of positive confirmatory evidence as to the harmlessness of Dr. Donkin's system to encourage us to use it on anything like a large scale.

As regards the treatment of Bright's disease by skim-milk diet, we think the evidence is greatly feebler: in fact, we must confess that the inadequacy with which the author seems to appreciate the pathological as well as the therapeutical questions, does something to shake, though it does not overthrow, our confidence in the validity of his observations respecting diabetes. We think it is a pity that he did not limit his attention altogether to the latter disease: for in this the phenomena that indicate improvement or deterioration of the patient's condition may be far more easily observed in such a manner as to enable us to form valuable conclusions as to the effects of treatment.

Nevertheless the whole book is worth reading; and we put it down with a feeling of esteem for the author's ability and sincerity, and with the conviction that he has proposed a therapeutical expedient which requires, and will probably well repay, experimental trial in all the hospitals of the country.

A Treatise on the Origin, Nature, and Varieties of Wine. By J. L. THUDICHUM, M.D., and AUGUST DUPRÉ, Ph.D., Lecturer on Chemistry at Westminster Hospital. 8vo. pp. 760. London and New York: Macmillan and Co.

THIS book, which professes to be a "Complete Manual of Viticulture and Oenology," thoroughly fulfils that purpose, and is probably one of the most solidly useful works that have appeared, on any subject of the kind, for many years. Personally, we cannot help expressing some regret that the learned authors, so well qualified for the task, did not include in their work a complete discussion of the actions of wine upon the body in health and in disease: but we certainly cannot wonder that they shrank from that task. As it is, the volume is of large size, and must have demanded much labour for its production. So we can only hope that, one day, the authors will return to the subject of wine, on the side of its physiological and therapeutical actions.

It is, of course, out of the way of this journal to give any extended notice of a work which is only concerned with what is in fact mainly a question of food-economics. But we may say here that we have read the volume with great pleasure and profit: and we are convinced that both the medical profession and the public would do well to study this thoroughly sensible and business-like account of the botany and culture of the vine, the wine-making processes, and the chemistry of the various wines, both in and after the various grades of fermentation. If they will do this with care, a great deal of misty nonsense which has been lately put into their minds by advertising wine merchants will be speedily got rid of; and by the time that people generally have begun to take an intelligible view of what wine *is*, they will be a good deal better prepared than they are at present to be taught what wine is *good for*. On the whole scope of subjects which the present work of Drs. Thudichum and Dupré embraces, there can be no doubt that it must henceforward rank as the standard authority.

Lectures on the Clinical Uses of Electricity; delivered in University College Hospital. By J. RUSSELL REYNOLDS, M.D., F.R.S., &c. &c., Physician to the University College Hospital. 8vo. pp. 112. London: Churchills.

WE are very glad to notice the appearance of this useful book. At the present day, when the medical use of electricity is on the one hand exalted to an absurd position, and on the other derided by men who are quite incompetent to decide on its merits, it is an important advantage that a physician like Dr. Reynolds—who has for many years been working at nervous diseases, and at electrical, among other, forms of treatment for such diseases—comes forward and quietly tells the students of a large London Hospital what electricity will and what it will not do. And it is most satisfactory to find, from this unbiassed report, that its actual curative value, and still more its uses as a palliative, entitle electricity to one of the most honoured places in the list of our therapeutic weapons. But perhaps there will be even more utility in the remarks in this treatise on the *diagnostic* uses of electricity: for it is strange that in all the wrangling about the value of electricity, its diagnostic value is seldom discussed, though it has been carefully pointed out in a number of treatises.

It is neither necessary nor desirable that we should analyse this book. It is small enough to be easily read through, and, if necessary, to be learned by heart. We recommend all students and young practitioners at once to get it, and commence the

serious study of its very important subject-matter. They will find that this treatise uses the utmost plainness and simplicity of speech.

On the Use of the Ophthalmoscope in Diseases of the Nervous System, and of the Kidneys; also in certain other general Disorders.

By THOMAS CLIFFORD ALLBUTT, M.A., M.D. Cantab., F.L.S., &c. &c., Physician to the Leeds Infirmary. 8vo. pp. 405. London and New York: Macmillan and Co.

As this is a work on Diagnosis, we can only briefly draw the attention of our readers to its merits. But we may say that there has rarely been a greater need for a class-book on a new and important subject than was the need for a *physician's* manual of Ophthalmoscopic Diagnosis, a subject, as every one knows, that has recently assumed extraordinary importance. And we can positively say, that not only is this volume a record of special and very excellent clinical observation, but that from the point of view of the skilled ophthalmoscopist there is little or nothing that could have been added or altered in the present state of science.

Du Rôle des Microzoaires et des Microphytes dans la Génèse, l'Évolution, et la Propagation des Maladies. Par le Dr. F. de Ranse, Rédacteur en chef de la *Gazette Médicale*, Membre de la Société d'Anthropologie, de la Société de Médecine, &c. &c.

THIS work, which proceeds from one of the most distinguished of the "coming men" in Parisian scientific circles, will necessarily command much attention. It is far from our purpose to attempt any review of the purely scientific arguments, based upon micro-zoological and microphytological observation and criticism, which constitute the major part of the treatise. But as Dr. Ranse has made some very important applications of his scientific reasonings to practical questions of treatment, we desire simply to lay some of these conclusions before the reader without comment:—

"The constitution of effluvia, of miasms, and of viruses is complex. We find in them soluble matters, and bodies of a distinct shape, corpuscles, granules, molecular granulations, microzymes, bacteria, &c. These figured bodies may be eggs of microzoa, spores of microphytes, or anatomical elements. These last elements predominate in the contagious miasms emanating from sick persons, and in the viruses.

"This complexity in the constitution of effluvia, of miasms, and of viruses produces a corresponding complexity in their mode of action and their effects.

"The soluble matters which they contain may be either inactive or may act sometimes as poisons, sometimes as soluble ferments.

"Microzoa and Microphytes may behave as true parasites; that is to say, they may cause all the events merely by their presence, their development, their pullulation (this is the only method admitted by the doctrine of Animated Pathology), or they may act by the matters that they secrete; in which case these matters may be either poisons or soluble ferments.

"Finally, the anatomical elements, by grafting themselves on an organism, of which they will be henceforward an integral part, may transmit to that organism, by contagion or infection from element to element, the disease of the organism from which they emanated.

"If from these general facts we pass to the examination of the mode of action of each kind of agent in particular, taking note at the same time of the natural evolution of the disease to which it gives birth, it is difficult and often impossible to assign its exact part to each of the constituent elements.

"Thus the effluvia may equally act either as poisons or as ferments, whether by the volatile or soluble matters, or by the microphytes that they contain. We have given the reasons which lead us to attribute a toxic influence to them by preference; but this is only an hypothesis.

"Infectious diseases (miasmatic or virulent) are developed spontaneously, or are the result of the transport of some *contagion* from a diseased organism to a sound one.

"In the former case miasms act in the most complex manner, and it is probable that the disease results not only from the combined activity of the constituent elements of the miasm, but from the activity and the peculiar constitution of the organism submitted to their influence.

"In the second case, miasms and diseases, although their constitution is always complex, appear to act chiefly and even essentially by the anatomical elements which they contain; diseased elements, more or less altered, but retaining enough vitality to graft themselves and live in the new organism that receives them, and to which they transmit the disease.

"The therapeutic action of medicines is rarely simple, and still more seldom addresses itself to the prime cause of disease. It is therefore impossible to investigate and demonstrate the nature of the agents which give rise to infectious diseases by means of observations on the antiseptic or parasiticide properties of the substances which seem to give the best results in the treatment of these diseases.

"The most general conclusion which results from the preceding study is, that in the genesis, evolution, and propagation of

diseases, the *rôle* of microzoa and microphytes, instead of being a principal and essential one, as the doctrine of Animated Pathology considers it, is but secondary and accessory; and that we have no right to follow that doctrine in considering the diseases which result from effluvia, miasms, or viruses, as being of a parasitic nature."

Clinic of the Month.

New Operation for Cataract.—Mr. C. B. Taylor, of Nottingham, suggests a modification of the ordinary method of extraction, which essentially consists in removing a portion of the periphery of the iris instead of its whole breadth. He observes that prolapse of the iris has always been the bugbear of extraction whenever iridectomy has not formed a part of that operation; and yet the extreme beauty and super-excellence of the results when no accident has occurred and when all has gone well, after one of the old flap operations, is such that we constantly find ophthalmic surgeons abandoning the modern methods to revert to the old and necessarily much more dangerous flap extraction. The operation now suggested by Dr. Taylor is as follows:—He employs a pair of sharp forceps that pierce the sclerotic; a very light speculum (a modification of v. Graefe's); and two knives a line in width and bent at an angle similar to the ordinary iridectomy knife, one with a sharp point, the other with a blunt or bulbous extremity. Having separated the lids with the speculum, he turns the eye gently downwards with a pair of ordinary forceps, in the operator's right hand; and when in a favourable position, it is fixed by the sharp forceps at about the junction of the upper with the middle third of the cornea. The pointed knife is then entered in the corneo-sclerotic junction one or two lines from the forceps at the summit of the cornea, pushed well into the anterior chamber, and then with a gentle sawing motion carried along the summit until about one-third of the cornea has been incised. The capsule is then carefully divided with v. Graefe's cystitome, having been previously rendered tense, and the eyeball fixed with a pair of ordinary forceps. It is better, he thinks, to open the capsule at this stage, because bleeding from the wounded iris—and conjunctiva also—at a later period is apt to fill the chamber and render this part of the operation obscure and difficult. The upper segment of the iris is then seized and a small piece of the periphery only excised, the pupillary margin and portion of iris attached to it being left untouched and free in the anterior chamber; the lens is then extruded through the gap in the ordinary way, gliding behind the pupil, so that there is no stretching of the sphincter. In this way he believes he has secured all the advantages in the

way of safety and certainty of an associated iridectomy, and at the same time attained the grand desideratum, a central and moveable pupil. (See *Lancet*, Nov. 4, 1871.)

Hydramyl as an Anæsthetic.—In a lecture on the organic hydrides, Dr. B. W. Richardson expresses a hope that some substance will be hereafter found by the inhalation of which we shall so master pain at pleasure as to isolate consciousness from the common sensation, benumb generally and from within the periphery of the nervous matter, and leave the grey external matter of the cerebrum undisturbed. With this object in view he has renewed his experiments with anyl hydride. This is a faintly odorous fluid with sp. gr. of .625 and boiling at 86° Fahr. When breathed it creates no irritation, and Dr. Richardson found that on breathing the vapour of it out of a bag charged with it to the extent of 60 per cent. he almost immediately became unconscious, the recovery from the inhalation being singularly rapid. On June 6th, Dr. Richardson administered it for the first time for a short operation, viz. the extraction of a firm molar tooth from the lower jaw of a woman aged 30, Mr. Matthews being the operator. Two fluid drachms of the hydramyl were poured into a small vulcanite inhaler; and the inhaler being given to the patient, she was told to take a few deep inspirations. She carried out the instructions readily, and at the end of twenty seconds, as there was distinct evidence of an effect, the inhaler was removed. Dr. Richardson asked her to open her mouth, and Mr. Matthews immediately extracted the tooth. The whole proceeding occupied from twenty-five to thirty seconds. Within the minute the patient had recovered, and was talking consciously. She said immediately after she commenced to inhale, she felt as if she were passing into a natural sleep. She remembered being told to open her mouth, and said "she obeyed as well as she could," but she could recall nothing more relating to the operation: she felt nothing whatever of the extraction. In recovering she had neither vomiting nor nausea, although she had breakfasted a few minutes before; in brief her recovery was as perfect as it was rapid. The character of the anæsthetic sleep itself was most satisfactory. It was induced without a movement of any kind; the face retained its natural colour and expression, the pulse underwent no change whatever. Here, therefore, there was insensibility to pain before the actual abolition of consciousness. In continuing his experiments with this substance, Dr. Richardson found that its volatility interfered with its application in warm weather, and therefore proceeded to render it denser by the addition of a heavier gas, chlorine. The new agent, hydramyl-chlor, also proved a good anæsthetic, producing insensibility in forty seconds, unattended

by vomiting or nausea. Mr. Matthews has now administered it in upwards of a hundred cases for extraction of teeth, and in only two of these were there any exceptional symptoms. In one there was slight rigidity of the jaws, readily overcome by gentle traction; and in another there was some faintness, removed by ammonia in a few minutes, but followed by slight vomiting. (See *Medical Times and Gazette*, Oct. 21, 1871.)

Small-pox Epidemic arrested by Quarantine and Sulphurous Fumigations.—Dr. Hjaltelin states that, in the middle of April last, four French fishing vessels came into the harbour of Reykjavik with three men on board suffering from confluent variola. Vaccination and re-vaccination were immediately instituted amongst the population as precautionary measures, and a quarantine hospital was erected by Dr. Hjaltelin's advice in the neighbourhood of the town and about half a mile distant. A medical student and four servants were lodged in it, and were strictly prohibited from having any intercourse or communication with people outside. Dr. Hjaltelin visited the hospital daily, and being a firm believer in the power of disinfectant and antiseptic remedies, he resolved to try these remedies one after the other. The chief question appeared to be whether he should use the oxygenating or the deoxygenating compounds of this class, but, for various reasons, he determined to try the latter, and selected sulphurous acid, applying it both externally and internally: externally in the form of fumigation by burning refined sulphur in the sick rooms, and internally by giving sulphurous acid mixed with pure water. The effect was highly encouraging, and it soon became evident that although the patients had at first an objection to the strong and pungent odour, they felt the good effects of it. At the same time they got about a drachm of the ordinary sulphurous acid mixed with water as a drink every third hour. The result of this treatment was very satisfactory, for not only did the eruptive fever and the heat diminish, but in the milder form of the disease the vesicles dried very quickly, leaving the skin covered with their brown scales, which soon fell off. Out of twenty-two patients treated in this way only one died, who was brought to the hospital in a moribund state. Dr. Hjaltelin found that the tension of the skin was very much relieved by the external use of linseed oil mixed with one-fifth part of carbolic acid, rubbed into the surface with a soft brush. Bed-sores and secondary abscesses were treated in the same manner. In order to protect the sight he used nitrate of silver, which he thought more sure than collodion. He thinks that the use of the sulphurous acid fumigation and the sulphurous acid internally, evidently mitigated the primary and secondary fevers; the heat of the body

was remarkably lowered, and the thirst was quenched even when the primary and secondary fevers ran very high. The symptoms generally following the primary and secondary fevers of small-pox, as the pains in the back and the articulations, severe headache, vomiting, ptyalism, &c., were evidently also mitigated by the internal use of the sulphurous acid. Under these judicious measures, the attack was entirely limited to the strangers, not a single inhabitant of the island being affected, though experience has shown that the Icelanders are, no less than other people of the globe, extremely liable to small-pox contagion. (See *British Medical Journal*, Nov. 4, 1871.)

Principles of Treatment of Rheumatism.—Dr. Ridge, after observing that an incipient attack of rheumatism can be cut short by diluents hot or cold, with abundant covering to the surface, or hot stimulants, or by a Turkish bath, proceeds to consider the means by which acute rheumatism can be removed. The inflammatory action, he thinks, may be either checked or diverted. Nerve-excited inflammation may be checked in two ways, by 1, directly reducing the nerve-energy; or 2, by locally diminishing the activity of tissue oxidation. By reducing the nerve-energy, he means a process quite distinct from its diminution in one form through diversion into another channel. He refers to a simple decline of its intensity. This may be effected by the continuous application of heat, or by the exhibition of certain sedatives, as opium, camphor, aconite, and most likely colchicum, although these can act powerfully in other ways. Nitrate of potash has a somewhat similar action on the nervous system, since it relaxes blood-vessels (so promoting the catamenia) and increases the perspiration. Another mode of checking the process is by directly retarding the oxidation of the tissues. In this way probably the various vegetable salines act, for it is well known that in passing through the system these salts are decomposed and form carbonates of their base; in this process a large amount of oxygen is consumed. The same amount of oxygen is consumed by the complete oxidation of 2 grains of acetate of ammonia, 5 grains of acetate of potash, 7 grains of citrate of potash, 8 grains of acid tartrate of potash, and 9 grains of tartrate of potash. When completely oxidised, however, most of these salts form alkaline carbonates, and alkalis promote oxidation: hence he thinks their secondary action will neutralise, or in some instances even reverse, their primary effect; and to the extent that they accomplish this they cannot but do harm. More powerful retarders of oxidation are met with in the acids, both vegetable and mineral, as the citric and sulphuric acids, and the hydrochloric in the form of perchloride of iron. But the morbid process may

also be arrested by diverting the excess of energy into another channel, and this is the principle of the administration of all the diaphoretic, diuretic, counter-irritant, and derivative measures which are so largely employed. These agents either produce a change of action in the inflamed part itself, and substitute vaso-motor contraction or secretion, or they restore the normal trophic action by diverting the excess of energy to establish inflammation, organic muscular contraction, or secretion in some other part alternatively connected with it by its sympathetic nerve supply. The establishment or increase of some secretion is the method most frequently adopted, and to this end opium, camphor, ipecacuanha, tartar emetic, colchicum, guaiacum, alkalies, salines, and some purgatives are administered, besides the application locally or generally of warmth and moisture; secondly, we may promote vaso-motor action by means of quinine, digitalis, and ergot; thirdly, the use of counter-irritants is widely spread and their value unquestionable. (See *Med. Times and Gazette*, Nov. 4, 1871.)

Treatment of Traumatic Tetanus.—M. Demarquay recently addressed a short communication to the Académie des Sciences, giving an account of a new mode which he has adopted of treating traumatic tetanus. Having, he says, during the late siege lost many cases without being able to alleviate them, he resolved in future to try a new procedure. First bearing in mind the great susceptibility to cold manifested by patients and the aggravation of the sufferings which this produced, he kept the two cases he now reports upon in a room heated to and carefully kept at a temperature of from 18° to 22° C. (64° to 72° F.). Next, in order to diminish the tonic and clonic contractions which are in this disease so painful, causing the patient to assume such strange positions, and especially to subdue the trismus, which is one of the earliest manifestations of tetanus, as well as to relieve the pain of the wound and the convulsions of the stump, he performed four or five times during the twenty-four hours intramuscular injections, as near as possible to the emergence of the nerves. These consisted of solutions of morphia diluted to a fiftieth part. At first each masseter was injected, as also the muscles of the neck on each side of the spinal column; and when the wound which had been the occasional cause of the tetanus was painful, an injection was thrown deeply into the substance of the muscles in its vicinity. Under the influence of these remedies the sufferings were speedily assuaged, and the patient was enabled to open the mouth and by copious drinks relieve the tormenting thirst. By aid of these, too, and the raised temperature of the room, abundant transpiration was produced. After some hours the injections were repeated, the painful con-

tractions being pursued wherever they appeared, throwing them into the substance of the muscles concerned. They were also made over the track of the nerves of the diaphragm, to subdue the spasm of this muscle; or along the course of the pneumogastric, with the view of relieving the difficulty of deglutition, which appears to depend upon contraction of the œsophagus. In this way the pains were assuaged, and the thirst relieved, while the patient was able to be fed with broths, milk, and an increasingly substantial diet. One of the two cases was suffering, when seized with tetanus, from a deep wound of the calf in process of cure, while the other had undergone amputation of the leg. In both the tetanus to all appearances was very severe, and although, of course, two cases do not say much in favour of any mode of treatment, their successful issue justifies its being made known. Frequently subcutaneous injections of morphia, atropia, and curari have been tried; but as far as M. Demarquay is aware, no one has hitherto thought of carrying the curative agent deeply into the substance of the muscles. This is, he believes, both a novel and a rational procedure. (See *Medical Times and Gazette*, October 7, 1871.)

Puncture of the Intestine in Tympanitis.—The paper written by Mr. J. Hancocke Wathen upon this subject in the October number of this journal, has led to several communications being addressed to the *British Medical Journal*. Dr. Braxton Hicks states that he has had four cases in which he has performed the operation, and considers that it has yet to be determined whether there is much risk of extravasation into the peritoneal cavity, experience at present showing this contingency to be unlikely. If the smallest exploring trocar be employed, the component tissues of the intestine are rather separated than cut, so that the opening is closed as soon as the instrument is withdrawn. One of the dangers of peritonitis arises from the extreme tympany which not unfrequently accompanies the attack. The pressure of the gas on the sympathetic ganglia and nerves, and the tension of the tissues which they supply, add much to the collapse and vomiting found in the complaint. Messrs. Brown, of Ealing, and Lawson Tait, of Birmingham, each report that they have performed the operation successfully. Mr. John McBride, the Lecturer on Veterinary Medicine in the Royal Agricultural College at Cirencester, calls attention to the fact that the "puncture of the intestine" stated by Dr. Wathen to be performed in the ox, is in fact puncturing the first stomach, or "rumen," an organ that is not very liable to inflammation. It may not only be punctured, but incised to the extent of seven or eight inches; its contents, amounting to as much as 1 cwt., removed by the hand; and medicinal agents, as powdered nux

vomica, introduced by means of the hand or a flour-dredger. He points out that there is consequently no analogy between the cases which he quotes and the operation described by Dr. Wathen as being frequently performed upon the lower animals. Puncture of the colon for tympanitis has, however, been performed upon the horse, though with very little success. As far as his experience goes in such cases, he cannot recommend its adoption in the lower animals. (See *British Medical Journal*, Oct. 21 and Nov. 4.)

Extracts from British and Foreign Journals.

Treatment of Ovaritis.—Dr. J. Matthews Duncan divides ovaritis into acute and chronic. The acute form may end simply by resolution, or its termination may be complicated by perioophoric adhesions or abscess, or true ovarian abscess, or it may end in the chronic form of the disease. Chronic ovaritis may last for many years without the organ becoming fixed by adhesions, and without suppuration in its substance or in its immediate neighbourhood. One ovary only may be affected on both sides, and the disease may be limited to one or attack both alternately. The left ovary, he thinks he has observed, is more frequently the seat of disease than the right. He has seen it enlarged to at least three times its ordinary dimensions. The symptoms cognizable by the practitioner are sensitiveness, tenderness, degrees of hardness, enlargement, roughness of surface, and change of position. Ovaritis is frequently caused by the conditions of recent marriage, or may be produced by suppression of the menses from cold or other causes; it is often observed as a consequence of gonorrhœa; it occurs frequently during convalescence from abortion. It is less common after delivery at the full time. It is observed frequently after operations on the uterus, such as metrotomy and other dilatation of the cervix, and it is frequently found in cases where no evident cause can be assigned to it. Ovaritis occasions pain which may be either slight or severe, acute or dull, in the region of the ovary, groins, back, sacrum, or down the thighs. It is not necessarily accompanied by suppression, or even any diminution, of the lochia or of the catamenial flow, nor by menorrhagia, though these symptoms may occur. Dr. Duncan does not believe that ovaritis is inconsistent with fertility, though it no doubt is a frequent cause of sterility. A woman suffering from ovaritis, acute or chronic, can rarely submit to sexual connection, on account of the pain it inflicts. Patients suffering from ovaritis often quickly assume evident outward appearances of depraved health, the dull eye, the pasty face, pallor and anæmic look. Ovaritis is only to be made out exactly by a physical examination, the details of which are fully given in Dr. Duncan's paper. The prognosis should always be very guarded; for although many cases mend rapidly,

many are very tedious. In the treatment the invaluable condition of rest of the affected organ cannot be maintained, the ovarian congestion attendant upon the maturation and bursting of a Graafian follicle coming to undo all that treatment may have effected. In chronic cases two, three, or four leeches may be applied through a glass speculum to the cervix uteri, and the bleeding from the leech-bites encouraged, if need be, by hot fomentation to the vulva. In some cases it may be preferred to apply a larger number of leeches over the inguinal canal. As in other chronic inflammations counter-irritation is here often useful. It is best effected by applying the irritant over the inguinal canal adjacent to the affected gland. A small extent of counter-irritation, say about two inches square, is sufficient. It may be produced by a croton oil liniment or antimonial ointment, or by keeping a blistered surface from healing. Instead of these forms of counter-irritation a seton may be used. The regulation of the bowels is important, and for this purpose the gentle salines are best adapted. Some patients derive advantage from the use of mineral waters, such as those of Kreuznach; others receive benefit from the waters of Homburg or of Kissingen. Iodine, bromine, and mercury may be used with all the care that is exercised in the administration of these remedies; in other chronic inflammations Dr. Duncan does not think the arrestment of leucorrhœa, especially by speculum and caustic, desirable, at least in an early part of the course of a case, and he has little doubt that this kind of treatment is occasionally a cause of ovaritis. (*Edinburgh Medical Journal*, Sept. 1871.)

Treatment of Hooping Cough with Compressed Air.—Dr. Freud observes that hooping cough was well described by Willis in 1682, that it is probably contagious, and that the probable carrier of the contagion is the expectorated mucus. Many pathologists admit lesion of the pneumogastric nerve as a cause of the disease, because it has sometimes been found reddened. He considers the division of the stages of the disease into the precursory or catarrhal, the convulsive and the convalescent, to be advantageous. No treatment has hitherto been found materially to shorten the duration of an attack, though belladonna, opium, extract of hemp, hyoscyamus, lactuca, pulsatilla, muschus, castoreum, cochineal, emetics, and metallic antispasmodics have been tried; change of air, however, proves of service. Inhalations of the gases in special chambers have been recommended, and were stated to have been very effective, but have now almost become obsolete. More recently chloral hydrate and peroxide of hydrogen have been employed. Now, however, the effects of compressed air are stated by M. Freud to be a valuable method of treatment. It was first recommended by

M. Bertin, of Montpellier, and then by Dr. Sandahl, of Stockholm, who reports no less than 102 cases rapidly cured by this means. M. Freud has also tried it and obtained extremely favourable results from its use. (See Virchow's *Jahresbericht Jahrgang*, 5, Band ii., Heft 1, 1871, p. 128.)

Pathology and Treatment of Cholera.—Dr. Karl Hertzka, of Vienna, remarks that the investigations of Hallier, published in 1868, show that the intestinal epithelium is thrown off in cholera by a kind of fermentation process taking place in them, owing to which an extraordinary development of micrococcus occurs leading to catarrh. The epithelial cells contained in the mucus show most distinctly the outgrowth of this micrococcus cells to larger and smaller microthrix chains. In addition to this moderate desquamation of intestinal epithelium, there is a considerable discharge of the fluid elements of the blood, and this has been shown by Ranke and Halenke, to be due to the absence of the epithelium. Hence the rice-water evacuations. Letzerich has further discovered vacuolæ between the cylinder cells of the intestine, which are continuous with tubes that form a plexus beneath the epithelium and in the connective tissue, and ultimately open into the centre chyle vessel. By means of these passages the spores gain entrance into the lymphatics within the lymphatic glands, where they have been discovered by Klob; thence of course they travel into the blood and lead to destruction of the blood-corpuscles, which, with moderate accumulation of the products of disintegration and the withdrawal of water, explain the symptoms of the various stages of cholera, and a great number of the secondary phenomena. Some of the latter are, however, occasioned by a metamorphosis of the fungus, which, owing to changes in its substratum, presents an alteration of generation. Such secondary affections are the "cholera typhoid," which also depends upon vegetable parasites, that are capable of developing from the cholera fungus, and the diphtherites of the small and large intestine; whilst the pyæmia parotitis, cholera exanthem, and diabetes render it probable that there is a ferment exciter present. The fungus consequently appears as the most probable cause of cholera, and this view is essentially supported by the therapeutics. The whole armory of medicine has been levelled against this disease, whilst the success has been correspondingly limited. Very recently Professor Botkin published the excellent results he has obtained from the employment of quinine; the mortality only amounting to 17·3 per cent. He prescribed it in five-grain doses, three, four, or more times a day if it were eliminated by vomiting. He also adopted in such cases the plan of subcutaneous injection, injecting fifteen drops of a

solution containing a scruple of muriate of quinine, ten drops of diluted hydrochloric acid in 100 drops of water. Besides the quinine powder, he gave most of his patients twenty drops of the following prescription six or eight times a day :—

Tinctura quinae comp.,
 Spirit. anodyn. Hoffman, āā ʒss.
 Quinae muriatis, ʒss.
 Acid muriat. dil. ʒiss.
 Ol. menth. æth. gtt. x.

In the treatment of abortive forms of cholera, Botkin used small doses of carbolic acid with good results, as in the following formula :—

Acid. carbolic. crystall. grana sex.
 Quinae muriat. drachmam
 Ext. liquirit. q. s. ft. pilulæ lx.

Two to be taken three times a day.

The results obtained by Botkin, though very surprising, are not altogether new, and can at most only be regarded as a corroboration of the fungus theory: Hallier had already in 1867 shown that when he placed one drachm of meat, two grains of diluted acidulated sulphate of quinine, one drachm of water, two drachms of starch-paste, and twenty drops of cholera evacuations, in an isolating apparatus at a temperature of from 25° to 35° R.; after five days the substratum was weakly acid, the meat throughout firm and undamaged, the starch-paste quite unaltered except that the granules were accumulated in numbers of ten or twelve into large balls; with the exception of slight formation of micrococcus and some arthrococcus on the surface, there was no development of fungus. When, however, opium was substituted for the above mixture, prepared in all other respects similarly, putrefaction took place. On opening the vessel a peculiar smell was perceived, and micrococcus was discovered, with disintegration of the various substances. Hallier also mentions that Dr. Hassenstein, of Gotha, had used quinine successfully in cholera in the form of clysters. In regard to carbolic acid, the experiments of Hallier show, that although it checks the growth of the cholera fungus, it is not one of the most powerful disinfectants. Dr. Hertzka continues, that as these results of the use of certain remedies render it probable that cholera owes its origin to a certain fungus, he desires to suggest the employment of various other means that have been found to constitute good disinfectants in Hallier's culture-experiments. Amongst these are red wine, permanganate of potash, sulphate of iron, strong brandy, and tannin. Very recently also, hydrate of chloral has been commended in half-drachm doses, and

Reichardt and Blumenthal, have published cases in which, when this plan was adopted, the issue was successful. Lastly, attention may be called to a remedy recommended by Kletznisky, ozone taken internally. Kletznisky has shown that if only a few drops of water loaded with fungus be added to a vessel containing fish, they speedily sicken and die, and in the foul decomposition that ensues only the fungus exists. But if the water be previously shaken with a little ozonized acid, and be then added to the water in which the fish are living, no ill effects whatever are observable in them. In the Russian Hospitals, during the present year, the employment of all means (as electrical machines) which increase the ozonization of the air has been adopted. (*Wiener Medizinische Presse*, No. 39, 1871.)

Importance of Exploratory Sections for Abdominal Diagnosis.—Dr. Wheeler reported a case bearing upon this subject at a late meeting of the Gynæcological Society. A young girl of less than 17 first consulted Dr. Storer about the beginning of the present year. From her infancy almost, she had been very delicate, and for many years her mother had suspected that an abdominal tumour was slowly forming. Of late she had attained a large size, so great indeed that a female physician who had been consulted had pronounced the case one of advanced pregnancy. Decided, however, that this was not the case, Dr. Storer's diagnosis was yet an extremely guarded one. At length an exploratory section was made by Dr. Storer. The general aspect of the patient was now that of ovarian disease; the face and body were both well nourished. There was dulness throughout the left flank, resonance upon the opposite side, some fluctuation in the upper portions of the abdomen. The uterus was normal and moveable, no sign of fluctuation in Douglass' fossa or through the anterior vaginal roof. The patient being put under chloroform, an incision was made at a much higher point than usual. The abdominal cavity contained no ascitic fluid, but the omentum and the intestines were found closely matted and adherent. Pelvic organs healthy. A large fluctuating tumour, the size of the head, presented itself in the left hypochondrium posterior to the peritoneum. Into this the pneumatic aspirator was passed, and the contents ascertained to be a thin and limpid serum. It had already been proved to be neither ovarian, uterine, splenic, nor dropsy of the Fallopian tube. It was now settled in addition to be neither psoas nor perinephritic abscess. By exclusion therefore it was renal in its character and cystic, but whether by hydatids, hydronephrosis, or dropsy of the upper portion of an ureter from occlusion, remained uncertain. Dr. Storer now proceeded to ascertain the lateral limits of the tumour and the point of reflexion of the peritoneum: indicating

this point by one hand within the abdomen, with the other he plunged a trocar into the tumour externally posterior to this point and very near to the spinal column. Five quarts of fluid were discharged. Upon collapse of the sac the kidney was felt in its usual position, smaller than natural and nodulated. The canula was left in position, the abdominal wound closed, and the patient encircled by a many-tailed bandage composed of strips of adhesive plaster. The patient rallied excellently from the operation, and was up to the day of the meeting doing well. (*Journal of the Gynecological Society*, Oct. 1871.)

Subcutaneous Application of Remedial Agents.—At the Medical Congress at Tübingen in June 1870, the late Professor Niemeyer spoke very favourably of injections of corrosive sublimate in syphilitic diseases. He considered the principal advantage of this mode of treatment to rest upon the exact dosage that could be accomplished, and upon the certainty that the whole of the material injected underwent absorption. He found that the pain at the seat of injection was not very great if the solution was sufficiently diluted (2 to 4 grains to an ounce of water), and that abscesses seldom formed. Opinions appear to be divided upon the advisability of performing subcutaneous injection in the case of children. Wunderlich mentioned a case where the injection of 1-16th of a grain of morphia in a girl of 17 years of age and otherwise healthy, produced a condition of restless sleep, and recommends caution. Professor Nägel, on the other hand, was satisfied with the result of his experiments of injecting morphia in children for blepharospasmos and ciliary neurosis, and even recommends subcutaneous injections of strychnia for amaurosis both in adults and children. The ill-consequences of the persistent employment of subcutaneous injection of morphia were dwelt upon by various speakers, the worst and most constant being a slavish addiction to its use, and Niemeyer stated that it sooner or later brings on both bodily and psychical disturbance. V. Cless alluded to the enigmatical difference in its effects, according to whether it is used for the first time or persistently. In the latter case the narcotic effects were not commonly observable, but were replaced by an agreeable though transient stimulating influence. Professor Köhler remarked that a plausible theoretical explanation of this could be given; for if it be admitted that morphia enters into combination with the nerve elements of the centres, producing when in small quantities functional hyperæmia, but in large, hyperæmia and paralysis, it is conceivable that when habitually used the nerve fibre remains saturated to a certain extent with morphia, and then, if large doses be given, they only produce augmented functional hyperæmia. Besides the remedies spoken of in this congress, Langenbeck has, as is well known, recommended

ergotin, the watery extract of ergot, to be subcutaneously injected in the treatment of aneurisms and of pulmonary hæmorrhage. Swiderski has employed it with effect in uterine hæmorrhage, as in those occurring at the grand climacteric, or from the presence of polypi, after abortion in male pregnancy and in metritis chronica. W. Zuelzer reports very favourably of the subcutaneous injection of stimulants in typhus and typhoid affections, such as occurred in the army before Paris, in the Hospital of the Château Petitbourg at Corbeil, when collapse with cyanosis and cold extremities, soft irregular pulse, and great debility were consequent on violent mental and bodily exertion in already debilitated systems. In such cases the internal administration of excitants was found to be too tardy, and he instead injected a mixture containing 8 to 10 drops of spirits of sulphuric æther and 4 or 5 drops of liquor ammonii anisatus, and found that within a few minutes the pulse became fuller and stronger, the contractions of the heart more free and energetic, and the collapse speedily disappeared. Dr. Rohde of Königsburg in states of great debility, especially when accompanied by diffused catarrhal conditions, which often, as in typhoid fevers, lead to a fatal issue, injected a solution of equal parts of camphor and benzoic acid in highly rectified spirits of wine every quarter of an hour, so that in the course of an hour about 7 grains of both substances were introduced into the system. He states that in many instances he preserved life by these means. The injections, he admits, were very painful, but caused no ecchymosis nor local abscesses. He attributes the freedom from the latter to the great care he bestowed in cleansing the canula, to the perfect clearness of the solution injected, and to the closure of the little wound for a minute or two by the pressure of the finger. (*Der praktische Aerzt.*, No. 6, 1871.)

Alkaline Sulphites in Marsh Fevers.—M. Polli contributes a paper on this subject to the *Journal de Médecine*, in which he remarks that the nature of marsh miasms as well as their action on the organism will be greatly illuminated by the scientific contributions of those who have treated this important question at the medical congress of Florence in September 1869. Malaria, he thinks, must be included in the class of causes which produce zymotic affections, and he now desires to direct attention to an antizymotic remedy, to the use of which he has been first led by scientific induction, and the value of which his clinical experience has not failed to demonstrate. He conceived, as far back as 1861, the hope of being able to apply it in these cases, from finding that sulphurous acid enjoyed not only reducing properties but also antiseptic and anti fermentative qualities, even when combined with the alkalies and the alkaline earths, and that in the state of sulphite it could be administered to

animals in much larger doses than when free, without producing any of the inconveniences inseparable either from its inhalation in the gaseous state or from the injection of its more or less concentrated aqueous solution. Numerous experiments practised on dogs having established the amount of the sulphite of soda, of the hyposulphite of soda, and of the sulphite of magnesia that could on the one hand be tolerated, and on the other was active, he at once proceeded to exhibit it in various diseases produced by the introduction into the blood of various septic and contagious matters, such as putrefying blood, decomposed pus, the fluid of glanders, &c. He then proceeded to determine by experiments instituted on himself and a friend what doses of sulphite could be administered to man, with the object of prescribing it in cases of purulent infection, and in marsh fevers. His experiments have extended over several years, and have always been controlled or compared with quinine. The results he has arrived at are:—1. That marsh fever can be cured by the sulphites alone. 2. That the action of the sulphites is less rapid on the attack of the fever than the sulphate of quinine; they do not stop so suddenly the periodical course of the fever, but they usually gradually diminish the violence of the symptoms, till they disappear altogether. 3. That the sulphites, *en revanche*, act much more certainly in preventing the return of the fever than quinine. Amongst 403 cases treated by the sulphites relapses only occurred in 5·7 per cent., whilst in 183 cases treated with sulphate of quinine the relapses amounted to 44·5 per cent. 4. That many cases of miasmatic fever, long rebellious under treatment by quinine, were cured by the sulphites alone. 5. That the sulphites can be employed with success even as a prophylactic means, and that they may be thus used for long periods without danger, which is not the case with the preparations of quinine. 6. That the sulphites can be administered without danger in spite of concomitant gastro-intestinal irritation and during the attack, and finally that many sequelæ of fever (excepting always anæmia) may be very advantageously treated with the sulphites. Since the sulphites have cured marsh fevers as well and perfectly as quinine, and have been found even still more serviceable than quinine in yellow fever, it has been suggested that the febrifuge action of quina may be due to an anti-fermentative action analogous to that which the sulphites exert on putrefying substances, and this view has been maintained and confirmed by M. Pavesi and M. Binz. It is not surprising now that carbolie acid, creosote, &c. have been used in similar cases with good effects. Arsenic perhaps acts in the same manner. The *curative* treatment adopted by M. Polli is given in the following prescriptions. If sulphite of soda be used, the proportion is 20 grammes of the salt in 200 of water, sweetened with honey

or some aromatic syrup. This quantity is given in the course of twenty-four hours in divided doses. When the sulphite of magnesia is prescribed, he gives 12 grammes in the same quantity of water, taken in four or six doses. When the hyposulphite of soda, 15 grammes in 300 of water, taken in a similar manner. It is essential to take the remedy one hour before or two hours after a meal, and not to drink, except after a long interval, any acid substance, such as lemonade, or to take acid fruits or vinegar.

The *prophylactic* treatment.—For this purpose he prescribes 6 grammes of sulphite of magnesia, or 10 grammes of sulphite of soda, or 8 grammes of the hyposulphite of soda, in two doses, dissolved in water, morning and evening, and considers this sufficient to preserve an adult during the season favourable for endemic disease. This dose can be taken without inconvenience for several months together. M. Polli does not employ either the sulphite of potash nor the sulphite of lime, the first having a disagreeable flavour and a too debilitating action; the latter being but little soluble and having also a disagreeable flavour. The hyposulphate of lime may, however, be administered, and is very useful in certain phases of tuberculous phthisis. (*Journal de Médecine, du Chirurgie, et de Pharmacologie*, Oct. 1871.)

Sulphurous Acid Lotion in the Treatment of Contused Wounds.—Dr. John Balfour states that an extended experience has given him great faith in this application. It gives almost instant relief from pain, controls and greatly restrains suppurative action, and, where possible, secures primary union perhaps as efficiently as carbolic acid. The lotion is of the strength of one in twelve; a thin rag (the thinner the better) should be laid over the wound, and kept constantly wet for the first thirty-six to forty-eight hours. When cold becomes less agreeable, the lotion is used tepid, the rag being wetted every twelve hours and covered with gutta-percha. Where primary union is taking place, about the third or fourth day, a dressing of zinc ointment is to be substituted for the washing: this allows the skin to heal. When suppuration is established, a zinc lotion may be used after a week or ten days, and the cure wrought out on ordinary principles. Dr. Balfour records the following, amongst other cases:—S. B., a lad between eleven and twelve years of age, on the 8th of June, in company with some other boys, was amusing himself with gunpowder; a “peege” (or devil) hung fire, and he poured some powder on it from the flask. This of course exploded, and tore open the metacarpal space between the thumb and forefinger of the right hand. The metacarpal bone of the thumb was fractured, and both wrists scorched. A mass of the short flexors of the thumb was forced out of the wound, contused, torn, and blackened. As this muscular substance was much injured and

could not be returned without using undue force, a good deal of it was cut off; the wound was washed out with the sulphurous acid lotion, covered with a rag wet with the same, and the fracture was kept in position by tying the thumb to the forefinger. Had a fair night's rest; the wrists (not complained of yesterday) now painful and beginning to vesicate; dressed with carbolic acid and oil. Everything went on well, the burns on the wrists healed kindly, suppuration was most moderate, cicatrization rapid and perfect. Dr. Balfour lately passed the boy into a public work, with a thumb very little, if at all, the worse for the accident. (*Edinburgh Medical and Surgical Journal*, Nov.)

Researches on Pulmonary Hæmorrhage.—Dr. Julius Sommerbrodt performed the following experiment on twenty-five dogs. A metal canula provided with a stopcock was introduced into the carotid, and a similar one was pushed into the trachea. About a hundred cubic centimetres were then withdrawn from the carotid and slowly injected into the trachea. In the same manner half-coagulated blood was thrown in, and in other instances again a little of a solution of perchloride of iron was injected before or after the injection of fresh blood. The animals experimented on were killed by bleeding at periods varying from one hour to twelve days after the injection. The main results obtained were the following:—1. Coagula in the bronchia are only exceptionally found twenty-four hours after the injection of fresh blood. 2. Coagula artificially produced disappear with equal rapidity. 3. Injection of a solution of perchloride of iron, containing eight drops to thirty of water, produces croupous pneumonia. In from five to ten minutes after such injections vomiting was constantly induced, which Dr. Sommerbrodt regards as attributable to a reflex action, occasioned by excitation of the pulmonary terminations of the pneumogastric nerve, and as analogous to the initial vomiting observed in an attack of pneumonia in children. 4. The injection of pure blood never occasions croupous pneumonia, nor was inflammation of the bronchia ever excited by the coagulum. Vomiting never occurred after the injection of pure blood. 5. Blood which had reached the alveoli constantly produced *catarrhal pneumonia*. Even in the course of four to six hours, but beautifully marked in the course of twenty-four hours, the 'large cells' of Colberg occur together with the blood-corpuscles in the alveoli, and about the fourth or fifth day are present in immense quantities. 6. In healthy animals this catarrhal pneumonia undergoes resolution, and recovery takes place. 7. The 'large cells' originate from the epithelial cells of the alveoli; these last enlarge, become cloudy, and separate themselves from the surface, leaving spaces behind corresponding to them. 8. The large cells of the catarrhal

pneumonia take up red blood-corpuscles into their interior in numbers varying from two to five. 9. At later periods, that is to say about the eleventh or twelfth day, the large cells have assumed a brownish tint, and resemble the cells that have been observed in the brown pigment induration of the lungs consequent on chronic disease of the valves of the heart; in other words, they have become carriers of the pigment of the blood-corpuscles. (*Centralblatt für die Med. Wissenschaften*, No. 43.)

Causes of Infection of Wounds.—E. Klebs gives the following results of his investigations:—1. The infectious conditions affecting wounds are produced by a parasitic fungus, the *Microsporon septicum*, which is present both in states accompanied by suppuration, or so-called pyæmic states, and in the pure septic form. The distinction between pyæmia and septicæmia must therefore be abolished. 2. These fungi produce local disturbance of the tissues, excite suppuration, penetrate into the lymphatics and blood-vessels, and are the cause of secondary local or diffused suppuration. 3. During the development of the *Microsporon septicum*, a fever-producing substance capable of diffusing through the fluids is produced; persistent fever is thus produced by the persistent importation of this substance, by the presence, that is to say, of the fungus in the organism. The *Microsporon septicum* is a true fungus, the mycelium of which closely resembles that of the *Leptothrix buccalis*, except that its threads are somewhat firmer. The spores are extremely small, and increase to a great extent, without the threads protruding from them. Usually oval heaps of spores are found, but there are also bacteria, spore-chains, and moving bodies (*Monas crepusculum*), which are probably swarm-spores. (*Correspondenz-blatt f. Schweiz. Aerzte*, Band 1, No. 9; and *Centralblatt*, No. 39.)

Notes and Queries.

DEPARTMENT OF ANALYSIS AND INVENTIONS.

FLUID MEAT, PREPARED BY STEPHEN DARBY, F.C.S.—This fluid meat is said to be prepared by digesting lean beef, at a temperature of 96° to 100° Fahr., with dilute hydrochloric acid and pepsine, until all fibrine has disappeared. The liquor is then filtered, neutralised by carbonate of soda, and evaporated to the consistence of a soft extract. It is sold at 10s. 6d. the pound.

The object aimed at in this preparation is to preserve all the nutritive parts of the meat, but to present them in such a form that even an enfeebled stomach might be able readily to digest them.

100 parts of the fluid meat contained—

Moisture	27·04
Mineral matters	11·35
Organic matters { Soluble in spirit of 80 per cent.	22·03
{ Insoluble	39·58
	100·00

The mineral matters contained 8·35 parts common salt (chiefly from the hydrochloric acid and carbonate of soda used), and 0·59 parts phosphoric acid. The nitrogen in the entire extract amounted to 8·01 per cent.; the percentage of nitrogen in the organic matters is, therefore, 13·00.

The characteristic part of this fluid meat should be the matters insoluble in spirit. These ought to consist, if the preparation fairly represented the entire meat, in greater part of so-called peptones—i.e. partially digested fibrine and albumen. In the preparation under consideration, however, by far the greater part of these insoluble matters is gelatine, and this of course could be added to ordinary Liebig's extract at a considerably cheaper rate than here supplied. This gelatine, moreover, will most likely interfere with the keeping qualities of the extract.

The taste of soups made with this fluid meat was somewhat bitter, like meat too strongly roasted, and the soups also tasted as well as smelt rather gluey. We cannot, therefore, affirm that at present the object aimed at in this fluid meat is perfectly attained: the idea underlying the preparation seems, however, a feasible one, and we trust that the manufacture may be so far improved as to produce an article which, in reality, represents the entire meat from which it is prepared. Such a preparation would certainly confer a great boon on a very large class of sufferers.

[The Editor begs to state that, in consequence of the pressure of matter, Correspondence and Bibliography are unavoidably left over.]

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